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Fundamental Principles Governing the Control of Hog Cholera

D. F. LUCKEY, D. V. S., Jefferson City, Mo.,
State Veterinarian

NO GREAT work can be accomplished without a definite and permanent plan. The plan must be simple, practical, economical and effective. It must be simple in order that it may be readily understood by the public. It must be practical in order to appeal to the masses. It must be economical and effective for the reason that the public is entitled to the best possible results at the least possible expense. In general, a state plan should anticipate preventing the introduction of disease into the state, a system of promptly detecting threatened outbreaks, the immediate reporting of threatened outbreaks to some constituted authority and arrangements for the application of control methods without delay and unnecessary expense.

Thorough Organization Necessary.

Thorough organization and good training and discipline of the forces are fully as essential in combating a contagious disease as in winning a battle. All active forces in connection with the organization should be absolutely free from the influence of politics or personal prejudice. Every man connected with the organization should be so well trained that he is always ready to play his individual part well.

*Presented at Annual Meeting of the Missouri Valley Vet. Med. Assn., Kansas City, Feb. 19-21, 1918.

It is now plainly apparent that the most efficient organization for the control of hog cholera, or any other contagious disease, must be dependent on the competent graduate veterinarians engaged in actual practice in various localities in the state. Each of these men is in touch with local conditions and can take the necessary action quicker and at far less expense to the state than regular sanitary officials stationed at a central point or even distributed over the state by districts. Like a fire department, the organization ought to be equipped for quick action whenever danger is threatened.

Of course, the organization must have a head, but it is not necessary, in order to accomplish good results, to have any large force of men on permanent salaries stationed at any central point. In traveling from a central point to extreme ends of the state entirely too much is paid out for per diem while riding on trains and the traveling expenses are too great. It is far cheaper to pay local deputies a liberal per diem and traveling expenses. Furthermore, men in regular employment draw pay whether or not there is work to be done; while, on the other hand, the pay of the local deputies stops as soon as the work is done.

The central authority should be vested in the state veterinarian, or

like officer. All co-operating forces, regardless of whether they are state or federal, should work under the direction of the chief state official, who is responsible for results. In fact, the results could be most economically obtained if all money to be expended in the control of a contagious disease were placed at the disposal of the chief state official. At present there is a drift toward the formation of two federal and two state authorities for the purpose of controlling contagious diseases. The federal government maintains the Bureau of Animal Industry, which is now being limited to the performance of regulatory work. It also maintains the States Relations Service for the purpose of carrying on educational work. Nearly every state maintains a state veterinarian, or like officer, who has heretofore had general supervision of state control work, but more and more the various states are inclined to limit the duties of this office to regulatory work. Then, each state is developing through the agricultural college, a second organization to do what is technically called educational work. Plainly speaking, we are developing two federal and two state organizations, for the control of hog cholera in particular. Thus, we are adding greatly to overhead charges, scattering authority and bungling the organization. From a practical standpoint, there seems to be about as much need for two presidents of the United States and two governors of each state as there is for two separate organizations for the control of hog cholera. From an economical and effective standpoint, there should be one central state department with undivided authority in charge of both regulatory and educational work. All money whatsoever, whether appropriated by the state or federal government, should be placed at the disposal of the central state organization.

Such a central state organization, with every competent graduate, practicing veterinarian in the state, thoroughly trained in live stock sanitary matters, would be a positive guarantee against any extensive losses from hog cholera or any other disease, and at an expense of probably less than half the cost of the same work performed by two state and two federal departments.

Effective Control at Small Cost

Of course, the main object in view is the prompt and effective control of hog cholera at the smallest possible cost. As has been indicated, this can be accomplished through the assistance of local practitioners. The results of the hog cholera work in Missouri during 1917 fully confirm this fact. It must be conceded that local deputies were under paid for the work they did, but even if they had been allowed a liberal per diem the cost would still be far cheaper than with any other practical plan. During the year, 180 deputies did active service in hog-cholera control work. They drew an average per diem for the whole year of less than $45.00 each. On an average, each of these deputies saved over $5,500 in the treatment of infected herds, and probably many times that amount by the prevention of the spread of hog cholera. No like results could possibly be obtained at anything like the small cost by any other sort of an organization.

The quicker a fire is reported, the easier it will be extinguished by the fire department. Likewise, the quicker a threatened outbreak of hog cholera is reported, the quicker the infection can be controlled and at much less expense to the state and loss to the community. Therefore, the great secret of success in the control of hog cholera seems to be based upon prompt reports of outbreaks to some constituted official who can render prompt aid. In any slow-going disease it is doubtless practical to have the public trained to report outbreaks to the state veterinarian direct. But in a highly contagious disease, like hog cholera, this method would be too slow. Therefore, arrangements should be made for every threatened outbreak of any kind of disease among hogs to be reported to the nearest available deputy, and such deputy ought to be authorized to respond to the call immediately. A scheme of this kind seems to appeal to

the good sense of the hog raisers in the farthermost districts of the state, and its efficiency has been demonstrated by results obtained in Missouri last year.

The local deputy should immediately make a report of each official visit to the central office. It has been found extremely beneficial to have the local deputy report on the back of his official blank the names and addresses of owners of exposed, susceptible hogs. These can be warned of their danger by a letter promptly sent out from the central office.

Sources of Infection

In order to deal with a virulent contagious disease, like hog cholera, we must take a broad view of the sources of infection. We must go back and ascertain how hog cholera comes into the state. Doubtless there are numerous minor agencies which serve to introduce hog cholera into a state, but the great spreader of hog cholera is the shipment of hogs, especially carload lots for feeding purposes. From January, 1900, to July, 1902, the writer traveled extensively over the state of Missouri, and had arrangements for reports from the public markets on hogs with cholera, and during these thirty months not a single outbreak of hog cholera could be found in the entire state. As soon as the great corn crop of 1902 was an assured fact the shipment of stock hogs began. The rest is history. Outbreaks of cholera followed thick and fast at a majority of the points where stock hogs were unloaded. From these centers the disease spread back and forth across the state, and it is safe to say that during the past sixteen years the cholera spread by the shipment of stock hogs has killed at least ten hogs for every stock hog unloaded in the state during this time. When we investigate an outbreak of hog cholera today we are satisfied to report that the cholera came from an adjoining farm. If, however, we trace far enough, the trail will, in a vast majority of cases, lead back to where some shipment of stock hogs has been unloaded. I have personally observed the cholera, spread from single outbreaks, through a period of two or three years, repeatedly circle a county until the actual source of infection had been entirely lost track of.

The next great source of infection, as we find it in the state, is from outbreaks of hog cholera caused by incompetent vaccination by laymen. In our work last year we found one outbreak of cholera after another which had started in a healthy herd as a result of vaccination by laymen.

Of course, there are a number of minor sources of spreading hog-cholera infection, but none that would threaten dangerous outbreaks. If the medical formula is to be followed and we are to begin with the removal of the cause, we must control these two sources of infection.

Quarantine Regulations

The prevention of the spread of hog cholera by hog shipments must be accomplished through state quarantine regulations. Unfortunately, there is at this time a vast difference of opinion as to the type of regulations which will serve the purpose. Nearly every state has some sort of restriction on the shipment of hogs. In many cases the regulations are more or less invalidated by issuing special permits. In some cases, the shipment of stock hogs is permitted subject to quarantine and vaccination at destination. At present the majority sentiment seems to be in favor of the shipment of stock hogs immediately after vaccination, either with the serum alone or with the simultaneous method. The federal government now requires the taking of temperatures before vaccination and the elimination of those hogs which show 104° F., or over. It is difficult to dispose of this important matter without a somewhat lengthy discussion, but it is of sufficient importance to justify extensive consideration.

We must take into consideration the fact that as a general rule, with hog cholera as prevalent as it is all over the hog-raising districts, it is almost impossible to bunch as many as a carload of stock hogs, either at the public markets or at country points, without getting some hogs that either have

cholera or are just ready to break out with it.

If these hogs be permitted to move under special permits subject to vaccination at destination, a vast majority of the shipments will carry cholera with them. The spread of cholera in the community where they are unloaded is so certain as to brand it as unsafe.

The next most liberal arrangement for the shipment of stock hogs consists in taking temperatures to guard against infection, vaccinate and ship them subject to quarantine at destination. It is doubtful whether the taking of temperatures, especially in hot weather, will be a safe guide. During the summer months a great many healthy hogs will show a temperature over 104° F.; while in cold weather hogs affected with cholera may show a temperature below 104° F. It is also doubtful whether the vaccination of a hog which is due to break out with cholera in twelve hours will stop the development of the disease. The fact that these shipments are subject to a quarantine of three weeks is evidence that they are considered infected, and the conclusion that they are so infected is well founded. The question arises, Is quarantine at destination practical? Will any ordinary quarantine notice prevent the spread of cholera by dogs, wild animals, birds, and drainage?

In handling some 2,500 outbreaks of hog cholera in the state of Missouri in 1917, we did not even consider the limiting of infection by quarantining the infected hogs only. It was a general rule that all surrounding neighbors should vaccinate their hogs. Even then, in some cases, the infection crossed the dead line. In some cases, when owners of exposed hogs failed to comply with the request to vaccinate, the cholera did not always spread, but it spread in a sufficient number of cases to keep the disease prevalent in the state. In short, it may be stated positively that a quarantine on infected hogs under local farm conditions is entirely insufficient to control the disease unless surrounding neighbors will immunize their hogs. Therefore, when we permit the shipment of hogs subject to quarantine at destination, we are actually putting the owner's neighbors to the expense of vaccination in order to spare the shipper the expense of holding his hogs for a proper length of time after vaccination to make his shipment safe. If we consider the matter from the standpoint of the shipper alone, it seems right and proper to save him the expense of detaining his hogs and to let him move them in the shortest possible time. However, if we consider the interests of his immediate neighbors and the community at large, we are compelled to conclude that the shipper of stock hogs should hold his hogs until the danger of spreading cholera is over. This matter should be carefully considered from the standpoint of the bona fide hog raisers in the community where stock hogs are to be unloaded.

It does not seem that a shipment of stock hogs can be safely made until at least fourteen days after vaccination, when as a rule, the period of incubation is over, and any dangerous hog in the lot will either show physical symptoms or a rise of temperature. Beginning in August, 1913, many thousands of stock hogs have been shipped out of the St. Joseph market. For the first two years they were held twenty-one days. Subsequently they have been held fourteen days. These hogs left the yards with a free bill of health and there has apparently been no spread of disease by them. In short, the practice of holding shipments of stock hogs from the St. Joseph market over a period of fourteen days shows positively that these shipments can be made safe. The great question now is, whether the state and the federal government will make these shipments safe and make hog raising within the state safe or take long chances on the continual spread of hog cholera by the adoption of less stringent quarantine regulations.

Stringent Laws Needed

Supplementing quarantine regulations for the prevention of the introduction of hog cholera into the state, a clear-cut drastic state law should be

(*Continued on page* 200)

Sheep Practice

By E. F. BAKER, Moscow, Idaho,
Assistant State Veterinarian

EDITOR'S COMMENT—Don't read this article unless you concede the other fellow a right to his opinion.

Doctor Baker knows sheep, the sheep industry, sheep diseases and sheep practice; of that there can be no question; his years of experience in a large and growing sheep practice, his conspicuous success in this division of veterinary practice make this incontestable. And he can tell what he knows, or a part of what he knows, of sheep and sheep diseases in a plain, forceful manner. This is shown by his splendid book on "Sheep Diseases." But, does he understand veterinary education? Has his experience in teaching veterinary students, which we understand to have been limited, qualified him to say what should and what should not be taught in veterinary schools? As a practitioner, he realizes the shortcomings of his own college course in the matter of sheep practice. From observation, and acquaintance with other practitioners, and from his large correspondence on this subject with veterinarians in every part of the country, he realizes, more perhaps than anyone else, what is lacking in the average practitioner's knowledge of sheep practice. But, can he point the remedy?

There will be a difference of opinion on this. Few will agree with his implied statement that too much attention is given to stock judging in the average veterinary course. His proposition to teach specialized botany, and specialized chemistry without previous instruction in the fundamentals of these sciences is not new; but, notwithstanding it has long been promulgated, it has never made any headway. Why? Is it practical, feasible or possible?

THE greatest menace to successful sheep practice at the present time is the unbridled county agent. The following report appeared in a recent issue of an agricultural journal:

"Many reports are coming in of sheep dying from some sort of silage poison. County agent Blank is busy investigating these cases."

After aforesaid county agent duly investigates and officially finds that the corpses are dead, as a last resource, perhaps some veterinarian will be called upon. If he is not prepared to give some kind of a diagnosis, the layman's contempt for our profession is further increased.

Second only to the stallion owner who imagines himself a high-class veterinarian, the sheep man is the most difficult client to deal with. This is due to several things: first, the veterinary colleges have paid very little attention to ovine pathology; second, the average veterinarian has not treated more than half a dozen sheep in his life; third, the natural animosity arising from enforced quarantines; fourth, overbearing tactics on the part of some veterinarians, and general all round "cussedness" on the part of the sheep men. Added to these is the difficulty in treating sheep, for the mortality is high, except when treatment is instituted early, and the veterinarian is lucky. Then again, low values of sheep in the past did not warrant much expense in the way of veterinary services.

As "constructive criticism" is not considered a crime in these days, let us pay our respects to the shortcomings of the various veterinary colleges. In order to do this, let us ask graduate practitioners some questions:

How much time did you spend in studying the anatomy of the sheep? And if any, was the subject treated in a practical manner? Did you receive any information on wool; how it grows; its texture; the special glands of the feet; the structure of the nasal fossae; a study of the brain; a working knowledge of the various vessels and parts of the viscera subject to parasites; could you intelligently describe the urethra of a ram; and so on *ad libitum!*

A practitioner sells his knowledge and

results for money. He must be able to translate his scientific language into a lingo easily understood by his client. If he cannot, he is considered a bluffer and an educated faker by the men with the large wads of currency. It is essential that a veterinarian be able to use the best nomenclature when needed, but this is seldom necessary in ordinary practice.

How much knowledge of botany does the average veterinarian possess? That is, practical knowledge. Can you point out an unobtrusive toxic plant to a client? He does not care for a lot of long-winded theories. He is not interested in learning the botanical family to which it belongs. He doesn't give a rap about its history. He wants to know two things about it: how to identify the plant, and what to give as an antidote. As a veterinarian, can you give this information concerning the common poisonous plants in your community? It is not necessary for you to know all about every plant in the United States; get a working knowledge of the ones in your vicinity—that is a task worthy of a man's effort.

The average botany course as given in the veterinary colleges today is absolutely worthless to a veterinarian. He spends all his time in drawing plants that cause no damage to stock; he is burdened with long scientific terms that do him very little good when he is asked a question by a practical stock owner. Toward the last of the course, he is given a few cursory remarks about poisonous plants, and thus equipped, he starts out in a cold, unfeeling world. The man who teaches botany to him usually has been a salaried man all his life. In most instances he is not a veterinarian. He is unfamiliar with commercial practice. He cares little for the cost of drugs used as antidotes; they are furnished by the college to him free of charge, and he never gives the cost a thought. He may be a specialist in his line, but as a practical, hard-boiled result-getter he is *nil*.

Instead of drawing pictures, why not take the class out for a ramble, and pass up the violets and the dandelions and keep the young veterinary undergraduate from strolling away from the class with a young domestic science seeker after knowledge? Why not hold a clinic every time a poisonous or suspicious plant is found? Why not spend three-fourths of the time given in botany to poisonous plants, molds, fungi, etc., that will be important to the veterinarian? How much time is spent on ensilage poisons; or on demonstrating why some ferns or mosses are deadly and others innocuous. How to examine common hay, straw or other forage for poison? Would this not be more to the point than spending tedious hours in memorizing botanical terms never used in practice? Think of the valuable time spent by industrious students in concocting "ponies."

Botany can be made one of the most useful subjects if taught correctly. If given by a veterinarian who has specialized on this subject and who has had actual practice, it would be all the better.

Chemistry is another study given to veterinary students with about as much absorption as is the case when mineral oil is used. The writer remembers his course in chemistry with a smile. But it should be a groundwork for further and constant experiment. We were taught how to bend glass tubes; how to fake experiments; how to memorize equations; who discovered oxygen; and to not attempt to carry away a leaky bottle of hydrochloric acid in one's hip pocket! When we received a passing grade in completing the course we knew almost as much as before we started.

Seriously, why could this subject not be made an interesting one to veterinary students, simply by presenting it in a practical manner? About all the chemistry the practitioner ever needs is connected with some toxic condition, which may be due to a mineral, vegetable or animal poison. Therefore, the poisons should be dwelt upon with special emphasis. Why give the same course in chemistry to veterinary students as to students in electrical engineering? A valuable dog is poisoned, or a herd of hogs or a horse dies from some obscure forage poisoning. Would it not be a fine thing if the veterinarian possessed enough chemical knowledge to ferret out the truth? If called as an expert

witness, would it not create a favorable impression on the court if he could answer questions in regard to toxicology with intelligence and readiness? Is he ever asked about the atomic weight of platinum, or to write an equation for calcium?

Chemistry could be made a valuable foundation for materia medica, but is it?

The less said about ovine pathology the better! We will leave it to the average graduate to ruminate over this. He can appreciate how little he knows about sheep diseases after he is asked a few direct questions by an owner who has lost a bunch of valuable animals.

What about special ovine bacteriology and parasitology? Again, let us draw the curtain.

Another subject that can be made an important one to veterinary students is animal husbandry. But is it? Instead of spending time on methods of feeding and handling; on history and breeds; on interesting information that may prove useful to the student after graduation, he is hounded to death with stock-judging, and other points nonessential to a veterinarian. To be sure, a working knowledge of this is fine to possess; but why emphasize it? The average veterinarian deals with sick, instead of judging stock. In sheep practice this subject is a very important one, for if a veterinarian does not know the breed of sheep he is treating, the owner is apt to regard him as a "four flusher."

Materia medica can be made a very interesting subject if given by a man who has practiced some, instead of merely being a theoretical scientist. Why not pay a little more attention to the cost and action of drugs than so much to their family history and botanical names? If a man can treat a case of sickness and get good results with four-bits' worth of medicine, is that not better than using two dollars' worth, with similar results? The trouble is that the average teacher of materia medica has never practiced a day in his life. He is ignorant as to commercial values. He gives his students a good theoretical course that would break them up in business inside of a year should they attempt to carry out his formulas.

Again, what special attention is given to ovine therapeutics? Is the student given instruction how to administer medicine, as well as to know when not to? As the average practitioner knows and realizes his lack of training along these lines it is not necessary to dwell on them further.

As diagnosis is the foundation of sheep practice, how much actual work is given in this? But again, how can a teacher give this when he does not know practical conditions himself? He can read the symptoms and history out of a book, and give these in a lecture, but is that practical? If a student could see a lamb affected with tetanus, or a ewe with rabies, and study the actual animal, would he forget the clinical pictures? If he could see an experimental sheep fed poisonous plants or enough to cause poisoning, and then given the antidote, would he forget the clinical picture of either plant or result? If he could be shown the fluke or tapeworm in its natural state, or the gid, or the larvae of the gadfly, would that not be better than drawing a picture and all the time thinking of the dance next Friday night?

What are the principal clinical differences between blackleg and hemorrhagic septicemia? How could you determine whether a hundred sheep suddenly dying succumbed from plant poisoning or from an acute infectious disease? The result of your diagnosis may mean thousands of dollars to your client, and if unsuccessful, the blasting of your reputation as a sheep expert. My idea of general medicine as given to veterinary students is that it should include several weeks with a good live, up-to-date deputy state veterinarian, accompanying him on several trips to contagious disease outbreaks. Until veterinary colleges realize the value of an "interneship," just that long will graduates adorned with glittering fraternity pins and with large, vacant spaces for rent under their hats, be sent forth to afflict the live stock world! And also, to hurt the general reputation of our profession!

To summarize, sheep practice is in its swaddling clothes with the average veterinarian. The writer is in receipt of numerous letters from successful prac-

titioners, beginning with: "Was called to treat my first sheep last week. The symptoms were . . ." and then follows several pages of anxious queries. The average practitioner realizes his ignorance, and the better he is, the more he realizes his limitations.

Instead of allowing sheep practice to drift into the hands of county agents and patent medicine fakers, let us pay more attention to sheep diseases. When we attempt to gain more practical knowledge along this line we are struck with the paucity of literature pertaining to the same. It is true there are many long-winded theories and pamphlets and bulletins written by long-haired scientists, but will they stand the test of actual practice and give results?

It is too bad the practitioner who depends on results for his bread and butter must blunder and experiment along by himself. To write a book suitable for all conditions in our country would require a lifetime of research and over two thousand pages. The best that can be done is to give suggestions; a simple suggestion will often lead the inventive practitioner to obtain successful results. A general warning may give the investigator a clue to his particular problem.

And in the study of sheep diseases, as the writer sees it, the keystone is: Diagnose the case; prevention and treatment will naturally follow. Mistake the condition, and your client loses his animals, while you lose your reputation!

More actual experience is needed in the study of these problems, and less theory.

Parasites in Sheep*

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DUE to the fact that during the past few years the price of mutton and wool has virtually doubled and also to the fact that in many respects, Pennsylvania is admirably adapted to sheep raising, many farmers there, who have never raised sheep, are going into this important branch of live stock production. Men, inexperienced in sheep raising are constantly in need of advice and no other trouble causes them more concern than do the various parasitic diseases common to sheep. Reports indicate that the sheep-raising sections are already badly infested and greater production is sure to mean greater infestation with parasites, unless strenuous measures are taken for their control. With these facts in view, this paper is presented with no attempt to handle the subject in other than a practical way.

The first thing to be considered in the handling of this serious problem is the life history of the organism concerned, and the second that in parasitic diseases, as in infectious diseases, there is always grave danger of the infection spreading from farm to farm. When once a flock is infested with parasites, its complete cleaning up is very difficult. The important question to answer then, is this: Can a clean flock be produced from infested breeding stock, under average farm conditions? Fortunately, in the case of most parasites, the answer is in the affirmative.

One of the most common parasites affecting sheep in Pennsylvania is the Esophagostoma columbianum, or the causative agent of nodule-disease. It is a thread-like worm, white in color, and about an inch long. The female is slightly larger than the male. The life history is imperfectly understood; however, it is presumed that the eggs or embryos are ingested with the drinking water or food, and lodging in the intestinal tract, they hatch out and bury themselves in the intestinal walls, producing various sized nodules, generally about the size of a pea, which later be-

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come caseated. Auto-infestation is also considered common by some.

The symptoms produced are, as a rule, not marked until the animal is put on dry feed in winter quarters, although the gains previous to that time are somewhat lessened. If the animal is badly infested, emaciation, general debility, anemia or diarrhea often lead to death during the winter months. Postmortem examination may reveal as high as several hundred nodules in the walls of the intestines.

Prophylactic Treatment

It has been amply demonstrated, first by the Louisiana Experiment Station, and later by others, that by what is known as the bare-lot method of feeding, clean lambs can be raised from infested ewes. Essentially this method consists in providing the lambs with food and water not contaminated by the feces of the ewes. To accomplish this, the ewes with their lambs are not allowed to run on pasture together, but are kept in a bare lot, free from all vegetation. All food is fed in racks and troughs, so constructed that no food will drop upon the ground and become contaminated. The watering troughs are also arranged so that there is no possibility of the water becoming contaminated by feces of infected sheep. After the lambs become old enough so that it is only necessary that they suckle twice a day, they can be kept in one pasture, and their mothers in another. Of course, the pasture where the lambs are kept must be absolutely free from infection, which generally means that the land has not been pastured by sheep the year previous, and is well drained. While such a plan involves considerable extra labor, it is time well spent, as a sheep suffering from nodular disease never makes rapid gains, especially in the winter time.

Troublesome Stomach Parasite

Probably the most troublesome parasite which we have to combat in sheep is the Haemonchus contortus, commonly known as the stomach worm. It is a reddish-brown, thread-like worm a little over an inch in length. The organism lives chiefly in the abomasum, where it produces harmful results by absorbing nutritive elements from the stomach, by abstracting blood from the walls of the stomach and by eliminating a toxic substance which, according to Ransom[1], destroys the red blood corpuscles.

Its life history is described by Ransom as follows: "In the adult sexual stage, stomach worms are able to live and carry out their reproductive functions only in the alimentary canal of sheep or other ruminants, occurring in the greatest number, in the fourth stomach. Each female produces thousands of eggs of microscopic size, which do not develop into adult worms in the body of the host in which they are deposited, but, without hatching, pass out of the intestine in the feces. In a few hours, days or weeks, according as the temperature is high or low, these eggs, if they are not killed by dryness or freezing—either of which is fatal to them—hatch out, and the tiny embryonic stomach worms then develop to what may be termed the final larval, or infectious stage. This later development likewise requires days or weeks, according to the temperature, and until the embryos have reached the infectious stage they appear to be fully as susceptible to freezing and drying as the eggs. Having reached the infectious stage, however, the worms are able to withstand long periods of dryness and severe cold, though some of them succumb comparatively early.

"In the infectious stage, the young worms are very active in the presence of moisture, and rapidly crawl up blades of grass and other objects whenever the relative humidity of the air is at a maximum, provided the temperature is above 40° F., or thereabout; below this temperature they are inactive. A decrease in the relative humidity, with the consequent evaporation of the moisture from the surface of grass blades and other objects, stops the migrations of the worms, and they become quiescent and remain in a condition of suspended animation wherever they happen to be at the time. During the next period of wet weather, dew, rain or fog, they again become active and climb still higher on the grass. This crawling up grass blades is evidently most advantageous to

[1]Twenty-fifth Annual Report of the Bureau of Animal Industry.

the worm, as it thereby gets into a position from which it is much more likely to attain its final abode within the stomach of a sheep or cow than if it stayed on the ground. When swallowed by a sheep or other ruminant, the embryonic stomach worm, if it has reached its final larval stage, whether active at the time or in a state of suspended animation, continues its development and in the course of two or three weeks has reached maturity."

Numerous experiments have been conducted in an effort to find some method of pasture rotation or bare-lot feeding to control this parasite, but up to the present time, such methods have proved of little avail. It is known that lambs become infested at an early age by taking in the larvae as they suckle their contaminated mothers.

The most pronounced symptoms are noted in lambs and yearlings, it being presumed that older sheep are more or less resistant to the toxic products of the parasite. In lambs the first symptoms usually appear just after weaning. At this time, they gradually lose flesh, become extremely anemic and later dropsical swellings appear about the neck and brisket. Of course, all infested lambs do not succumb to the disease, the greatest loss probably being from lack of thrift of the animal.

Once a flock is infested, it cannot be hoped to entirely rid it of the parasites. Their control can in a large measure, however, be accomplished by proper management such as pasture rotation, and at all times access to plenty of pure water, and by medicinal treatment with copper sulphate, gasoline, or one of the various combinations of iron, arsenic, areca nut and salt.

Chloroform Dispels Lung Worm

Another parasite of considerable importance in Pennsylvania is the Strongylus filaris, or the lung worm of sheep. The worm is greyish white in color and from two to four inches in length, the female being larger than the male.

The life history of this organism is imperfectly known. However, it is believed by most investigators that the lung worm is capable of reproducing itself outside the animal body in moist soil. Affected animals probably give off the infection through the nasal discharge, or the infective material may be coughed up from the lungs, swallowed and passed out with the feces. Animals probably become infected by inhalation of the organism in its encysted state.

The first symptom noticed in the affected animals is a more or less violent cough, later dyspnea, emaciation and debility.

Until Herms and Freeborn[1] discovered the chloroform treatment, little or nothing was accomplished in the way of medicinal treatment. The chloroform treatment has, however, proved very effective. The affected animals are given enough chloroform by inhalation to make them stagger. This produces enough irritation to the respiratory tract to cause the animal to cough up the worms which have been partly anesthetized by the chloroform. As the animal swallows most of the parasites as they are expelled from the lungs, a saline purge should follow in two or three hours. Food and water should be so placed that it cannot become contaminated with the infective feces. This treatment should be repeated in about three days, two or three treatments usually being sufficient to practically rid the animals of the infestation.

Gid Causes Loss During Winter

During the winter months, the disease known as gid causes the flock owner more or less trouble in most sections of the state. This disease is caused by the cystic form (*Coenurus cerebralis*) of the Taenia coenurus, a tapeworm common to dogs, foxes and wolves, the cyst forming on the brain or spinal cord.

The symptoms shown are clearly those of brain trouble, varying with the portion of the brain or cord affected. In general, however it may be said that the animal travels in a circle or stands with its head pushed in a corner or against a wall.

The mode of prevention is clearly that of providing the flock with water uncontaminated with the feces of animals harboring the adult form of the tapeworm. Of course, it goes without say-

[1]Circular No. 148, University of California College of Agriculture.

ing, that dogs, wolves, etc., should not be allowed to devour the carcasses of sheep having died of the disease—a method by which the disease has been widely spread on the ranges.

Little or nothing is practical in the way of treatment.

Gadfly Source of Annoyance

A parasite causing the flock owner considerable annoyance is the larval form of the sheep gadfly, which deposits its eggs about the nostrils of the animal during the summer months. When the larvae hatch out they find their way back into the sinuses and upper part of the nasal cavity. Here they remain during the winter in the form of a grub about three-fourths of an inch in length, causing the affected animal considerable irritation manifested by a mucopurulent discharge from the nostrils. The condition rarely produces death, the loss being that of lessened gains and lack of thrift.

Pine tar smeared about the noses of the sheep during the summer months will generally keep the adult fly away from them. This can be accomplished in a practical way by boring two concentric holes in a log, the smaller hole being the deeper. Salt is then placed in the bottom of the smaller hole while pine tar is smeared around the larger. When the animal comes to get salt, it will automatically smear its nose with the tar. In cases of valuable animals, trephining and removal of the grubs is sometimes practical.

This by no means exhausts the list of parasites found affecting sheep in Pennsylvania, but it covers the internal ones most widely distributed. There are other tapeworms, both cystic and adult forms, liver flukes, etc., affecting sheep.

In general, it may be said that pure water, pasture rotation, thrift and medicinal treatment will, in a large measure, control parasitic diseases. Too much emphasis cannot be laid on pure water. The flock should never be allowed to drink water from pools or water that drains from a sheep pasture. The ideal pasture is high, dry and well drained. Another important factor in the prevention of parasites is the elimination of all unthrifty animals from the breeding stock. The vigorous growing lamb is less likely to become a host to the various parasites than the unthrifty one. Regarding medicinal treatment, if results are to be expected, the animal must be fasted from eighteen to twenty-four hours, or longer, before treatment.

Bovine Tuberculosis: Its Diagnosis and Control*

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HISTORICALLY, bovine tuberculosis is among the oldest of the known cattle diseases, but, like other specific maladies, its nature was not understood. As early as 1370 it was forbidden in Munich to offer for sale the flesh of animals affected with tuberculosis. In 1702 Florinus emphasized the then widespread opinion that bovine tuberculosis was identical with syphilis. In 1783 the Berlin Board of Health rejected the theory of any relationship between bovine tuberculosis and syphilis and declared the flesh of tuberculous animals fit for food.

In 1816 Tscheulin recognized three degrees of bovine tuberculosis in connection with infected meat, namely: (1) animals in which the tubercles were to be removed and the flesh used; (2) those in which the diseased parts were to be destroyed and the meat sold at a low price, and (3) those that were so badly diseased that the entire carcass should be condemned.

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The early study of tuberculous lesions gave rise to a number of theories concerning their nature. Thus Virchow, Schuppel and others declared that the tubercles in cattle were lymphosarcomata. Leisering considered them as simply sarcoma. Spinola and Haubner maintained that human and bovine tuberculosis were identical. Later, Von Behring advanced the opinion that most human tuberculosis was contracted from infected milk.

Tuberculosis has been the object of a succession of important researches and investigations since Villemin demonstrated its infectious nature in 1865. Following this announcement, attention was centered on its etiology until Koch's discovery in 1882. Then special effort was made to determine the nature of the reaction of the tissues to the invading organisms which differentiated its lesions from the other infectious granulomata of earlier writers. The discovery of tuberculin was followed by a large amount of experimentation relative to its therapeutic and diagnostic value. The differentiation of the human and bovine varieties of tubercle bacteria called forth many researches that resulted in greatly modifying the sanitary aspect of this disease. These special studies were accompanied by vigorous efforts to eradicate the disease.

The nature and distribution of the lesions in bovine tuberculosis are of much interest. The fact that it is usually a local disease in the beginning and often remains such for years, without endangering other animals, has been difficult for sanitarians to appreciate. It is in the varied locations of the tubercles within the body, the manner of their development and the irregularity in the elimination of tubercle bacterin that we find an explanation for the different methods of control. . . .

Human medicine should profit from the hasty conclusions that were drawn and the applications that were made of a few facts regarding tuberculosis, tubercle bacteria and tuberculin before the nature of the disease was understood and the limitations of tuberculin recorded.

The structure of the tubercle is essentially the same in cattle as in other species. In the beginning the reaction of the tissues to the invading organisms consists of a few cells surrounding the specific bacteria. They are early encased by a zone of epithelioid and giant cells which, in turn, is surrounded by a reactionary outer layer composed largely of lymphoid tissue. As the tubercle is nonvascular, the central portion undergoes necrosis. With the growth of the lesion the central necrotic area becomes correspondingly large. This structure is illustrated more clearly in the early stages of the avian tubercle. In cattle there is a strong tendency for the dead tissue to become infiltrated with lime salts. In certain species, especially the experimental animals and frequently in swine, the lesions have a tendency to become more diffuse, infiltrating the interstitial tissue and gradually encroaching upon the parenchyma.

The location of the primary tubercles depends upon the channel of infection. If the specific organisms are lodged in the oral cavity or pharynx they may pass through the mucosa, to be taken to some of the lymphatic glands about the head; if they are taken directly through the respiratory passages into the lungs they either develop tubercles in the lung tissue proper, or they are carried through the lymphatic system to the lymph glands, draining the lungs where the lesions first appear. If the bacteria are first lodged in the intestinal mucosa, primary tuberculous ulcers may develop or, as usually happens, they pass into the mesenteric lymphatics, or the portal vein. In this case the primary lesions may occur in the mesenteric glands or liver. However, the bacteria may pass through the lymphatics and thoracic duct into the general circulation, from which they may be lodged or filtered out in any organ or tissue of the body.

The evidence at hand indicates that in a large majority of cases the pri-

mary lesions are located in one of the following organs: in the lungs or lymphatic glands draining them; in the lymphatic glands about the head; in the intestines or mesenteric glands; in the portal glands or liver substance itself; and in the generative organs and udder.

It occasionally happens that the primary lesions occur in the bones, on the pleura, peritoneum, meninges, synovial membranes or skin, while the organs usually attacked remain free from lesions. One of the distinctive features of bovine tuberculosis is the frequency with which the serous membranes, especially the pleura, are affected. The lesions consist of nodules, varying in size from that of a millet seed to a large pea, sprinkled more or less thickly on one or both of the visceral or parietal surfaces.

Dr. W. L. Williams has recently presented a very instructive paper on the frequency with which the generative organs of both sexes are affected with this disease. He has called attention to its significance in the production of sterility. The udder becomes the seat of tuberculous deposits in a small percentage of cases. It is affected more often in generalized tuberculosis, although cases of primary lesions in this gland have been found.

Advanced cases of bovine tuberculosis are instructive in showing the succession of crops of tubercles. As many as five generations have been observed. These are rarely, if ever, found, except in animals that are about to die. A large part of the study of tuberculosis has been made on animals slaughtered after the tuberculin test and where the disease process is usually in its early stages. This has failed to give the proper conception of the extent to which the organs of the body may be destroyed and the animal still live. When these specific organisms have spread from the seat of infection or the primary lesion through the blood stream, sprinkling other organs with the infecting bacteria, the disease has become generalized.

Klencke called attention to the sanitary significance of bovine tuberculosis in 1846. That year he published a work in which he maintained that there was a positive connection between the milk of tuberculous cows and the frequent development of scrofula in bottle-fed children. After Villemin's experiments, Gerlach showed that tuberculosis could be produced in animals by feeding them the fresh milk of tuberculous cows. The belief that human and bovine tubercle bacteria were identical and Von Behring's views of human infection from milk added much to the importance of this phase of the disease. The discovery of tuberculin and the fact that it gave a reaction when injected into tuberculous, but apparently healthy cattle, added still greater significance to this subject. Later, the differentiation of the human and bovine varieties of tubercle bacteria pointed out very clearly that bovine tuberculosis was not as important a factor in the production of this disease in the human family as it had been thought. The researches on this phase of the subject have been numerous. They have shown that in adults there is but little if any infection from the bovine type of tubercle bacteria but that young children are susceptible and frequently become infected with it.

Efforts to control bovine tuberculosis began in this country with the discovery of tuberculin and in the beginning it was prosecuted as a sanitary measure only. The method introduced in Massachusetts and New York in the early nineties was the first official procedure to eradicate this disease. It was initiated when health officials believed that tuberculosis in man was contracted from cattle and with the implied conviction that all reacting animals were immediately dangerous. The system required that the state or Federal Government should pay an indemnity for the animals slaughtered. This expenditure was justified on the ground of public safety and equity to the owners. It was found, however, that tuberculosis was much more prevalent than it was supposed, and that to

test all the dairy cattle, and to kill all the reactors and compensate the owners would not only cost more than the legislatures would appropriate, but also that it would be disastrous to our breeding and dairy herds. Further, it was learned with much embarrassment to the advocates of the method that while it often succeeded many herds that were treated by it subsequently were infected as extensively as before. The failure of this method to insure clean herds brought about numerous modifications of the system. The method assumed that the diagnosis was based on an exact science.

In Denmark and other European countries more conservative measures were employed. Among these the one introduced by Professor Bang, of Copenhagen, which bears his name, has been most successful where it has been carried out. It requires the testing of all cattle in a herd with tuberculin, killing for food, under inspection, all animals that showed on a physical examination any evidence of disease; separating the reactors from the nonreactors, and raising the calves on pasteurized milk or that from sound nurse cows. When a reactor showed physical signs of disease it was removed and slaughtered. The reactors gradually disappeared and their places were filled with healthy offspring. Meantime, the owner had learned something of the nature of the tuberculosis and was able to keep his herd from reinfection.

In Denmark the Bang method has been very successful because the people allowed the use of the milk of the apparently sound, but infected and reacting cows. This enabled the owner to purify his herd without financial ruin. All creameries pasteurized the separated milk before it was returned for feeding purposes.

In 1908 the health authorities of Copenhagen claimed the lowest death rate among children of any city of its size. In the United States this method has not worked generally because people would not allow the sale of milk from cows that had reacted to tuberculin, notwithstanding that all clinical cases of the disease had been removed and the milk was much safer than before. This made it financially impossible for our dairy men to apply the method, except in cases of very valuable breeding animals.

In 1907 we made examinations to ascertain how frequently tubercle bacteria appeared: (1) in the mixed milk of herds containing reacting animals, and (2) the extent to which reacting cows with sound udders were eliminating the organisms. The results of this preliminary study showed that in 49 samples of mixed milk acid-fast bacteria, resembling those of tuberculosis, were found microscopically in one specimen and guinea pigs inoculated with the mixed milk from two herds which contained advanced cases of tuberculosis developed the disease. The physical cases were removed from these herds and subsequent inoculation gave negative results. Of the 87 examinations of the milk from individual cows, tubercle bacteria were not found either microscopically or by guinea pig inoculations, except from two cases, and they were cows with affected udders.

These preliminary investigations were followed by a very thorough study by Peterson on the elimination of bacteria in the milk and excreta of reacting cows which exhibited no evidence of lesions. The examinations were repeated frequently over a period of several months to ascertain whether in such animals these specific organisms were eliminated intermittently. The milk of 17 reacting cows was examined. The milk was examined microscopically and guinea pigs were inoculated.

Peterson drew the following conclusions from this study:

"The tuberculous cattle examined that were apparently sound, but which reacted to the tuberculin test, did not eliminate sufficient tubercle bacilli to cause the death of experimental animals when injected with their milk or excreta, or for the same to be demonstrated microscopically.

"The animals that showed marked physical signs of tuberculosis eliminated tubercle bacilli in sufficient num-

bers to be detected microscopically or by animal inoculation in a large percentage of samples of milk and excreta taken at regular intervals. Single examinations of the milk or feces might give negative results."

Many years ago Ravenel pointed out the feasibility of diagnosing tuberculosis in cases of pulmonary affection by means of sputum examination. Our examinations have shown that occasionally animals which have passed both the physical and the tuberculin test eliminate the specific organisms with their sputum. In 1912 Scharr and Opalka emphasized the importance of securing mucus from the lower part of the trachea and bronchi for the purpose of diagnosis and also for finding spreaders. Their method consisted in inserting a sharp trachea tube between two of the cartilaginous rings, through which a long wire was passed with an eye armed with a small piece of sterile gauze. With the mucus thus collected microscopic examinations were made and guinea pigs inoculated. Before this, Hasenkamp suggested the use of a *Lungenschleimfänger*, or a metal cup, attached to a wire which was inserted into the esophagus and withdrawn, thereby scraping the mucus from the walls of the esophagus and collecting it in the cup. This could be subjected to a bacteriological examination. By means of the sputum cup Udall and Birch have been able to find spreaders among cattle that have passed the tuberculin test, as well as among those that had not been tested. They found among tuberculous cattle which they examined, that one cow in five was carrying tubercle bacteria in the esophagus.

A practical illustration of the nonreaction to tuberculin in infected animals is found in this experience: In the spring of 1904 the author tested a herd of 491 animals, of which 96 cows did not react. All of the others responded, and some of them were physical cases. The nonreactors were placed by themselves in a practically new barn, and three months later, and every six months thereafter, for more than three years, the sound herd was tested. Those that responded were promptly removed and the stable thoroughly disinfected with 5 per cent carbolic acid after each test. The results of the consecutive tests of the nonreacting animals were exceedingly instructive.

Many theories have been advanced to explain the tuberculin reaction, but the one that seems most likely to be correct is that of the hypersensitization of the tissues by the tubercle bacteria. This theory was first suggested by von Pirquet and Richet, who noticed the resemblance between the tuberculin reaction and protein hypersensitiveness, or anaphylaxis. Later, Lowenstein and Rappaport interpreted the tuberculin reaction as evidence of hypersensitiveness. Wolff-Eisner, Vaughan and others believed the reaction to be due to an antibody, lysin, or ferment given off by the tissues that already have been stimulated by tubercle organisms.

A careful inquiry into the cases where tuberculin has failed to produce a reaction in tuberculous animals has revealed several possible defects in the preparation of tuberculin, and a few conditions in the infected or diseased animal under which a reaction does not take place. These may be summarized as follows:

1. All strains of tubercle bacteria do not make an efficient tuberculin. When it is made from such organisms a reaction does not follow its use.

2. When the cultures of tubercle bacteria to be used in making tuberculin are not properly grown, that is, when there is too much liquid for the surface area, it does not contain an adequate quantity of the specific protein to enable it to cause a reaction.

3. When, in the application of tuberculin, the observation of the tested animal is inadequate to detect its effect the reaction is missed.

4. When the interpretation of the manifestations following the use of tuberculin is not made in accordance with the laws governing the reaction between it and the products of tuberculous lesions in the living animal.

5. When tuberculin is applied in the period of incubation.

6. When the tuberculous lesions are arrested, healed, encapsulated or very extensive, tuberculin often fails to indicate the presence of the disease.

7. When tuberculin is administered repeatedly, at short intervals, a reaction is liable not to follow after one or more injections.

It is obvious that failure, due to the improper preparation of tuberculin, inability to detect a reaction, or to correctly interpret it, should not be recorded against its efficiency. It can be appreciated, however, that neglect to guard against these might result in serious consequences. In fact many herds have been ruined by such neglect and tuberculin as a diagnostic agent has been condemned by practical breeders whose cooperation is especially needed. The great accuracy of tuberculin that has been pointed out by several writers pertains to the positive reactions only. Thus it is stated in a farmer's bulletin on this test out of 24,784 reacting cattle slaughtered, 98.39 per cent showed the lesions. There is no record of the post-mortems of those that did not react. I believe that an unquestionable reaction is a sure indication of the presence of tuberculosis.

The tuberculin is usually applied by subcutaneous injection. Within recent years a number of other ways have been devised for its administration. Among these the ophthalmic and intradermal methods have received most attention. In several states the intradermal test is recognized officially. Here the tuberculin is injected with a short needle into the skin itself, usually at the root of the tail, or into palpebral glands. The reaction consists in a swelling which can be detected in from 18 to 72 hours after the injection. Haring, in California, has reported most excellent results from this method, and he has also found that certain animals that failed to give a reaction to the subcutaneous injection did respond to the intradermal. The ophthalmic method is favored by some, but generally it is not received with favor.

There is much discussion at the present time as to which method of administering tuberculin has a claim for the greatest accuracy. In our experience the subcutaneous injection has been more satisfactory. The author does not believe, however, that it is possible to decide which method is most efficient until we understand more thoroughly the reason for the reaction.

Diagnosis Difficult

The diagnosis of bovine tuberculosis is a much more difficult task than is usually believed. It is true that a majority of cases respond to tuberculin, but a certain number do not. It is the refractory cases, which are often spreaders, that have caused so much difficulty in the eradication of the disease. It is unfortunate that professional men have not given more consideration to these fundamental principles in the effect of tuberculin. Legislators have been influenced by the assurances of its practical infallibility so that laws have been enacted centered on its use rather than the diagnosis of the disease. These have tended in individual herds to retard rather than advance elimination. We are coming to understand the difficulties and to appreciate the symptom-complex in diagnosis.

A great amount of work has been done in search of an efficent method to immunize cattle against tuberculosis. The results have shown that some resistance can be developed, but that the production of immunity as a practical means of combating tuberculosis cannot be accomplished by any means known at the present time.

The point that must be attained by education and regulation is the prevention of the spread of the infecting organisms. This means that the herd shall be the unit to deal with, and that infected animals shall not be allowed in the channels of trade, except as they are sold for immediate slaughter under inspection, or to go into known tuberculous herds where the Bang or other conservative method is being applied. The two points to be emphasized are that healthy herds must be maintained as such, and that infected herds shall be purified. Because of the insidious nature and the slow development of tuberculosis, it has gradually grown into many herds, and now it must be directed in such a way that it will grow out.

Statistics on the Use of Hog Cholera Anti-Serum and Hog Cholera Virus*

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DURING the year 1917 there were approximately 46,500,000 mils of hog cholera anti-serum sold within the state of Iowa, which is about 11,000,000 more than were sold during the year 1916. It is estimated that 46,500,000 mils of serum are sufficient to immunize 1,550,000 shoats weighing on an average of 75 pounds. As there are approximately 9,250,000 hogs in Iowa, these figures indicate that 16.7 per cent of all hogs in the state have been immunized. This increase of 3.4 per cent over the number immunized in the year 1916 is due largely to the extensive movement of stock hogs during the last quarter of the year.

The simultaneous method of treatment seems to have gained in popularity, as statistics show that in 1914, 88 per cent were treated by that method, while in 1917 the percentage has increased to 96. The average per cent of losses from the use of the simultaneous method in healthy herds over a period of five years is 2.1, while the loss for 1917 is only 0.7 of 1 per cent.

A report on 264,367 hogs, consisting of 92,943 sick or exposed and 171,424 healthy hogs, shows a loss of 2.1 per cent of healthy and 15.5 per cent of the sick or exposed herds. The difference, then, in the mortality is 13.4 per cent in favor of the hogs treated before sickness appears in the herd. This report covers a period of five years and represents approximately 5 per cent of all hogs immunized within the state. With the other 95 per cent showing like results, it means that if all the sick or exposed herds had been treated before sickness appeared, 249,079 more hogs would have been saved in this state during the past five years.

Of the hogs actually sick when treated, a recovery of 34.1 per cent is shown by the use of the serum-alone method, against 29 per cent by the use of the simultaneous. During the past year the percentage of recoveries has been 45 with serum alone and 40.4 with the simultaneous method. In all these statistics the serum-alone method shows approximately 5 per cent more recoveries than the simultaneous. This 5 per cent does not mean much in a single herd, but for all herds treated within the state it amounts to an enormous figure in dollars and cents, and seems to indicate that the indiscriminate use of the simultaneous method in sick hogs should be discouraged. On the other hand, there is no doubt of the superiority of the simultaneous over the serum-alone method from the standpoint of immunizing hogs.

During the past fall and present winter we have had opportunities to study the effects of the serum-alone treatment more than ever before, due to the shipment from other states of large numbers of single treated stock hogs.

We have also made some observations regarding hogs treated with serum, followed in a few days by the use of virus. It is the opinion of many who have studied these conditions (and results appear to verify the opinion) that single treated hogs, being in a state of passive immunity, are not susceptible to the action of virus, consequently a subsequent injection of virus or even the administration of the simultaneous treatment is of no value if given within several weeks of the administration of the single treatment.

It is difficult in handling a herd of hogs which has been single treated to determine the proper time for the second or simultaneous treatment, owing to the variation in the duration of the passive immunity in various herds and individuals. Probably the most satis-

*Presented at the Thirtieth Annual Meeting of the Iowa Veterinary Association, Ames, Jan., 1918.

factory method of procedure in a herd of this kind is to keep them under observation and not double treat them for sixty to ninety days after the single treatment unless they sicken. The objection, of course, to this method is that at this time as a rule the hogs are so large that treatment is expensive, and unless they sicken or are to be used for breeding purposes it is questionable whether revaccination should be attempted.

Some After-Effects of Vaccination of Hogs

By W. P. BOSSENBERGER, Williams, Iowa

THERE is nothing more discouraging to the practitioner than to have a herd of hogs "go wrong" after they have been treated. He may have been as careful as possible, and yet find sometime later that a number of them "went wrong." Undoubtedly the most common trouble is the formation of abscesses at the point of injection, supposedly due to infection gaining entrance following the operation. Many times we do not have the opportunity to visit these cases until some time after the work was performed, so that we do not have an opportunity to study the case from the beginning, and we are not called until the tumors become quite noticeable. During the past year or two I have made a special effort to ascertain the cause of these tumors, and have reached the conclusion that in a large percentage of cases they are not due to infection, but to pressure resulting in necrosis of the surrounding tissues. On cutting into one of these tumors in its early stages, a large mass of necrotic tissue will be found situated deeply in the muscles of the region injected. When allowed to progress for a certain length of time the tissue becomes liquefied and takes on the appearance of pus when examined macroscopically. Under the microscope many leucocytes will be found, but no bacteria. I have used various stains, thinking perhaps there might be some organism present that did not take the ordinary stain readily, but I failed to find any bacteria present. If the necrotic mass has not become too liquefied, many shreds of tissue will be found and in the early stages of the abscess the entire necrotic mass can be removed intact. The animal seldom shows any symptoms of illness; there is no loss of appetite, and the gait is about normal. The temperatures in this affection are usually about normal, and there is little if any inflammation in the surrounding tissues.

The most effective treatment is the removal of the necrotic mass and the disinfection of the wound. With ordinary care the wound will make a rapid recovery. The best course is to prevent the abscess, and this can be easily accomplished by giving smaller doses of serum at any one point. This is especially true if the injection is made on the inside of the ham. It is better to inject into a region supplied with more areolar tissue. Fatty areas should be avoided as much as possible, as the absorption from such areas is limited. Older hogs can tolerate a much larger dose at a single point than younger animals, probably due to the fact that the muscle texture has become more resistant to pressure. In very young animals I find that an injection of 5 cc. at one point seems to give no bad results, while in older animals 20 cc. should be the maximum quantity, unless the injection is made into a region well supplied with areolar tissue, when larger quantities are tolerated with no ill effects.

Septicemia sometimes follows vaccination; and the first symptom noticed is soreness or stiffness in the affected region. There may be some swelling, but it is always more diffuse than that of an abscess. The parts are hot to the touch, the temperature is always elevated, and the animal shows symptoms of general illness. The appe-

*Presented at the Thirtieth Annual Meeting of the Iowa Veterinary Association, Ames, Jan., 1918.

tite is poor and emaciation soon becomes noticeable, but this is seldom seen, as very few animals survive long enough to allow the disease to progress to this stage. Macroscopical examination may reveal only heat, redness, and swelling in the region, while microscopical examination of the tissue fluids will reveal the presence of bacteria. In the acute cases it will be found the streptococci will be the predominating variety, while in the less acute cases strepto- and staphylococci are generally present, the latter predominating. The mildest forms are caused almost wholly by staphylococci. Sometimes other germs are also present and the wound may show various appearances, depending upon the type of infection present.

The treatment is seldom of much avail as the animals usually die before anything can be done. Should they live long enough disinfection of the wound is in order. Many times one must make deep incisions at the point of injection to allow free drainage and to permit the disinfectant to penetrate to the botton of the tissue involved. Mixed bacterins are beneficial in many cases. In my experience, stimulants or internal antiseptics have not given good results, as few animals will take them without being drenched and drenching is unsatisfactory. The prevention of this after-effect is usually easy as it is always through the wound that infection takes place, and it is most common in herds in which the animals are allowed to wallow in the mud immediately after treatment. During rainy weather, treated animals should be kept on clean, well-bedded floors for several days after the operation, thereby giving the wound a chance to heal before they are turned out into muddy yards.

Malignant edema is a rather rare postoperative sequence. In my own practice I have been puzzled to account for its appearance in newly vaccinated herds. In bewilderment I consulted Herzog on "Disease Producing Micro-Organisms," and found the following in regard to malignant edema: "It is believed that the bacteria may gain entrance into the circulation from the intestinal tract and be carried to a contused area where they find conditions favorable for their multiplication." This statement of Herzog's easily explained my losses from malignant edema. The germs, as is well known, cannot live in the presence of oxygen and this contused area with its heat, moisture, and absence of oxygen offers a favorable situation for the development of this germ. From one to seven days after the operation a swelling will be noticed at the site of injection. This increases in size and circumference with great rapidity. The animal becomes ill and seeks out the coolest and dampest places to be found. When forced to move it walks with a dragging gait. Many times the affected limb becomes so painful that no weight can be borne upon it. The swelling is hot to the touch and if incised a gas of fetid odor and a straw-colored fluid escape. The tissues become gangrenous and death usually follows in from one to four or five days, rarely longer. The majority of the animals die on the first or second day after they become ill. I have not seen a single animal recover, although the infection seemed mild in a few cases.

No treatment seems of much benefit, and most of the affected animals die in spite of the most heroic treatment. I have taken a number of such animals and injected the area with a solution of iodin crystals in ether, solutions of iodoform in ether, making liberal incisions at the center of the infection, but none responded satisfactorily to the treatment.

As to prevention I cannot say much, as I have tried to prevent such after-effects by painting the point of puncture liberally with tincture of iodin and keeping the animals on clean, well-bedded floors, but still infection occurred. I believe if it were possible to administer a good cathartic to suspected herds several days before vaccination, and to follow up with some intestinal antiseptic, much better results could be anticipated on infected farms. At any rate, this will be my method of procedure in the future on any infected farms.

Retest for Bovine Tuberculosis*

By E. T. DAVISON, Quarantine Station, Athenia, N. J.

THIS subject has so often been discussed pro and con, that for me to attempt to offer anything new would be presumptuous. When we think of all the research work that has been done and the volumes that have been written concerning the employment of tuberculin as a diagnostic agent, it would seem that the subject was pretty well exhausted. No doubt this would be the case were it not for the fact that we have to spend a good portion of our time in unlearning the things that we hoped and believed were incontrovertably settled. Our beliefs and convictions are continually undergoing revision and modification. The hearsay of today is the orthodoxy of tomorrow. Our progress along almost any line of scientific endeavor is very similar to that of the proverbial frog that crawled out of the well three feet a day and slipped back two.

For many years we have been taught and have believed that the subcutaneous tuberculin test administered in the usual manner, rendered ineffective and unreliable, practically invalidated, in fact, any subsequent test administered in less than 60 to 90 days. The foundation on which we have reared this superstructure of belief seems to be crumbling and if further experimentation bears out the results secured by recent investigators, is in a fair way to be utterly demolished.

Drs. C. J. Marshall and Henry W. Turner of Pennsylvania, in a long series of tests extending over a period of five years, seem to have demonstrated that far more reliance can be placed on a retest administered in four to seven days than on the original test. I do not think that I can do better than to quote from their able paper presented at the Kansas City meeting of the A. V. M. A.:

All things considered, and under ordinary circumstances there is no method more reliable than the subcutaneous test. But when such tests are properly made, under the best conditions, the results are not always satisfactory. Some animals fail to give a decisive reaction and must be held for future consideration. A retest is apparently necessary.

The time that should elapse between the original and the retest has long been an unsettled point and has been set by various authorities at widely different periods. We originally retested all questionable reactors in thirty days, but as results were not satisfactory, the time was extended to three months. These retests have been unsatisfactory from a professional standpoint, and surely were trying to farmers and dealers who were required to maintain animals of undetermined health and value for so long a time.

These uncertain results have been a great drawback in the eradication of tuberculosis. In an attempt to clarify these disputed points, the Livestock Sanitary Board has been conducting experiments for several years.

In 1912 the following method of retesting was adopted: the time allowed between the original test and retest was four to seven days. The preliminary temperatures were recorded the same as in the ordinary subcutaneous test, but a special retest of tuberculin was used which is three times the strength of the usual dose. The post-injection temperature measurements were resumed the second hour after injection and continued every two hours until the twenty-second hour, or longer if temperatures continue to rise or remain stationary at a point above normal. The reaction occurs earlier in the retest than in the original test. Frequently a marked elevation of temperature is shown on the fourth to sixth hour.

In conjunction with subcutaneous retesting, the ophthalmic test is used as a check. The sensitizing method of ophthalmic testing is used. It consists of placing two or three drops of a 4 per cent solution of a specially prepared tuberculin within the eyelid. Often a reaction occurs from the sensitization but with no degree of certainty. Three or four days later, the same eye is re-dropped with an 8 per cent solution of the same preparation of tuberculin. The eye should be examined the second hour after dropping and every two hours thereafter until the twenty-second hour. A purulent secretion, or discharge, with a reddening of the conjunctiva will indicate a positive reaction.

The following is the method employed and the order in which the various tests are applied:

(Continued on page 208.)

*Presented at the Annual Meeting of the Veterinary Medical Association of New Jersey, Paterson, January, 1918.

Active Principle Therapy

By Dr. FRANK KIRBY, Chicago

(*Continued from page* 156 *March Issue*)

Colchicin.

This is an alkaloid from Colchicum autumnale (*Liliaceae*) and found in both seeds (three per cent) and corm (.3 to .5 per cent). Colchicin is soluble in ordinary solvents, $C_{22}H_{25}NO_6$.

Pharmacology. Physiologic doses of this alkaloid do not show their effect under two to six hours. Small doses are diuretic although at times the alkaloid affects the gastro-intestinal tract instead, or causes lacrimation or coryza. Brunton claims colchicin is an hepatic stimulant. It acts more freely on the carnivora than herbivora.

Colchicin has a selective action on gland structure. It is indicated in rheumatic conditions and hence of more service in dogs than in horses. As an eliminant it should be used in dropsy. The contra-indications to colchicin are gastric and intestinal irritability.

Therapeutics. Colchicin is a valuable remedy in rheumatism in house dogs. In the discussion of bryonin mention has been made of a desirable combination. In ascites colchicin is effective, preferably combined with alkalies such as calcium carbonate or magnesium carbonate. It is also useful in impaction when combined with strychnin and atropin or with eserin.

Administration. Colchicin has been referred to as one of our slowest acting drugs. Even hypodermically it takes an hour to act and hence is of service only in chronic conditions. The dose for a horse is one-fourth grain every three or four hours. In dogs we give 1/128 grain three times a day, always by the mouth in solution, pill or tablet.

Coniin

An alkaloid from Conium maculatum, Linné (*Umbelliferae*)—$C_8H_{17}N$, also known as cicutin. The hydrobromid is the only salt used in medicine.

Pharmacology. Coniin has a limited use in veterinary medicine and yet so well replaces the necessary large doses of bromids with their disadvantages, that mention must be made of it. The action of coniin is primarily on the end organs of the motor nerves. It is therefore indicated in cases of muscular and nerve excitation, tremors and restlessness.

Therapeutics. From the foregoing it would naturally follow that coniin is effective in chorea, tetanus, irritative coughs, convulsions and conditions associated with excitation.

Administration. Coniin hydrobromid, only, is used, as the alkaloid itself is a liquid. It is given by the mouth. The canine dose is 1/64 grain to effect sedation.

Digitalin

Digitalin is a mixture of the water-soluble glucosides of Digitalis purpurea. It therefore cannot be represented by a chemical formula. In fact it is a variable product with many pharmaceutical chemists. It is a significant fact that "Digitalin—Germanic" as now used is just twenty-five times the dosage of the product of fifteen years ago.

Pharmacology. Digitalin is essentially a tonic to the cardiovascular system. It slows the heart, makes the pulse fuller and increases the arterial pressure. These effects follow direct stimulation of the heart muscle and the muscles of the arteries and also the vasomotor centers.

The diuretic action of digitalin is the effect of increased blood pressure in the glomeruli. Digitalin is one of the few drugs showing what is known as cumulative action. This may depend on one or several causes, as delayed absorption (so frequent in pharmacologic work with frogs) also idiosyncrasy and delayed elimination.

Therapeutics. Digitalin is indicated in weak and irregular heart action, especially in those conditions associated with influenza, pneumonia or distemper.

In both renal and cardiac dropsies digitalin is of service. In the first and sec-

ond stages of pneumonia digitalin is indicated. Combinations of digitalin with strychnin, aconitin and veratrin have much to recommend them clinically, even though at variance with accepted theories. Such a combination is useful in the early stage of pneumonia where there is a full bounding pulse and the patients are relatively healthy.

Digitalin as a febrifuge is mentioned only to condemn it as too dangerous when we have aconitin or veratrin at hand.

Administration. The hypodermic administration of digitalin is preferred for quick action. The doses for the horse are one to two grains repeated every three hours to effect, then less often. The dog dose is gr. 1/64 to gr. 1/12 always to effect.

When digitalin is given in combination with aconitin the hypodermic should not be used as this is inconvenient from the necessity of frequent administration for fevers and irration from the local reaction of aconitin. Consequently we advise giving it by mouth.

Emetin

This alkaloid is one of the two most important of the active principles of the root of Cephaelis ipecacuanha (Rubiaceae). Cephaelin is the next in importance but is little used in medicine. It is the emetic principle and is usually the cause of emesis following the use of emetin in which it then exists as an impurity.

The hydrochlorid of emetin is the most frequently used salt. Both the alkaloid and its salts are freely soluble. Its chemical formula is $C_{15}H_{22}NO_2$.

Pharmacology. Emetin has long been known and used in active-principle medicine as a pure expectorant. While the galenical preparation of ipecac, either syrup or fluid extract, has been used in dystentery for years, its use is wholly empiric. We now know results were obtained only when emetin was present in the necessary dose and when the dysentery was amebic in origin.

A demonstration of the fact that emetin is an efficient amebicide both *in vitro* and *in vivo* suggested its value in amebic pyorrhea, in which happily it is now meeting with considerable success.

In pyorrhea alveolaris, as affecting dogs, its value is proved, and in its use for this purpose lies the interest in emetin for the veterinarian. Perhaps subsequent work will demonstrate its value as a hemostatic as applied to purpura hemorrhagica and epistaxis.

The pharmacologic work of Nielsen has brought out the fact that the hemostatic action of emetin results from its vasoconstrictive property confined to the capillary system, associated with decreased rate of the heart-beat. It apparently has no action in hemorrhage from the large vessels.

As an expectorant emetin increases the secretions and is therefore indicated in unproductive coughs. Emetin increases the secretions of the digestive system and as such is effective in chronic gastro-intestinal, pulmonary, genito-urin- value as a gastro-intestinal tonic.

Therapeutics. While emetin may at times cause emesis, there are other and better remedies on which to depend. In conclusion, emetin should be used in subnormal digestion, dry coughs or the early stages of acute bronchitis, pneumonia and in canine pyorrhea. It may prove of some service in purpura and undoubtedly in hemorrhage of capillary origin, such as gastro-intestinal, pulmonary, genito-urinary and nasal. It is suggested for the postoperative hemorrhage of castration and in coccidian dysentery in cattle.

Adminstration. Emetin as an emergency remedy is used hypodermically. The canine dose is from one-half to one grain. One dose is usually sufficient in hemorrhage. It may be repeated in two hours if necessary.

For acute conditions the frequent small dose is preferably given by the mouth in solution or pill form. Given to dogs, 1/64 grain at half-hour intervals should produce only good results—nausea or emesis being the indication of full dosage.

Dr. J. B. Jones, Atlantic City, N. J., claims good results in canine diarrhea from a dose of one teaspoonful every half hour of the following formula which can readily be put up: Copper sulphocarbolate gr. ¼; emetine hydrochloride gr. ½; water, 4 oz.

(*To be Continued*)

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"Immune" Hogs Must Not Take Cholera

A NEBRASKA breeder of pure-bred hogs recently advertised for sale at public auction hogs "immuned by the double treatment." A man who had lost practically all his hogs from cholera and who knew that his pens were infected bought six brood-sows at this sale, and relying on the vaccination as a warranty against cholera, turned them into his infected pens. All six sows promptly died of cholera.

The purchaser sued the breeder for the cost of the sows. A jury was waived and the case tried on its merits. The judge held that the defendant must pay since it was shown that hog cholera can be prevented by a proper "double treatment" and therefore advertising as "immuned by the double treatment" presupposes a warranty against cholera.

This is the first case of the kind to be tried in Nebraska courts and so far as we know, in any court. The decision is a just and reasonable construction to put upon the statement "immuned by the double treatment" and we have no doubt is good law. However, the decision was received with astonishment by breeders in Nebraska and elsewhere and by the farm press. It places the responsibility for seeing that anti-hog-cholera vaccination is properly done with an adequate amount of potent serum and virus squarely up to the owner of the hogs and that is just where it belongs. Otherwise he must sell his hogs as being susceptible to cholera and the buyer will know what measures he must take for his own protection. It is a powerful argument against vaccination by any but qualified veterinarians and the use of any but serum of unquestioned standard.

To follow the matter further, has not the owner of hogs that die after being vaccinated against cholera just as much cause for action against the vaccinator as the purchaser in this Nebraska case had against the seller? If "a proper double treatment" will prevent cholera and a veterinarian is employed to give such treatment to hogs that later die of cholera, is it not evidence that something is wrong and is not the veterinarian liable, provided of course he furnished the serum and virus? He might in turn have recourse to the manufacturer of the serum but in that case the burden of proving the serum or virus at fault would be upon him, and likely to offer considerable difficulty.

Safety can lie only in using serum and virus made by manufacturers of unquestioned integrity and of absolute reliability; in performing the vaccination as accurately, carefully and painstakingly as it is possible and to give the caretaker explicit directions as to after-care. Then when a suspected

"break" occurs, investigate promptly, hold autopsies, send material to diagnostic laboratories and call in at least one qualified consultant.

And don't neglect to charge enough for vaccinating hogs to enable you to use good serum and enough of it, to do the work right in every particular and to get reasonable pay for your time and skill.

HIGHER RANK FOR MEDICAL OFFICERS

Bills are now pending in Congress for the reorganization of the Medical Department of the army. The matter is of grave importance. Such action as Congress may take in the matter may affect the status of veterinarians in the army directly and is sure to affect it at least indirectly.

The Medical Department as it now exists is founded upon the traditions of the British Medical Department of 1776! At that time it was the duty of the Medical Department to cure disease and wounds. Little or no thought was given to the prevention of disease and, of course, in the absence of all knowledge of modern surgery the repair of mutilated bodies as it is conducted today was undreamed of.

With the exception of the Japanese Medical Department in the Russo-Japanese War, medical officers have never had the necessary rank and authority to prevent epidemics and other diseases that have taken such frightful toll from all armies of ancient and modern times.

Appalling examples of the frightful waste of life from neglecting precautionary measures for the prevention of disease might be cited in all of our previous wars but the picture is bad enough to take the most recent one (Spanish-American) and contrast the record with that of the Japanese army in the Russo-Japanese War only six years later.

Of the 107,000 American troops encamped in 1898, one-third were infected by typhoid fever and the admissions to hospitals exceeded ninety per cent

Arrival of Wounded and Sick Donkeys; Marne District, France.

of the men enlisted. For every man that died in action, 13 died of disease! The admissions to the hospital in the Porto Rican campaign reached almost 100 per cent of the men engaged and the deaths from disease were 100 times as numerous as the casualties. In the Japanese army, during an equal period, the hospital admissions were four per cent and the deaths from disease were fewer than the casualties.

The Medical Department of the army should have the authority, and in the army that is synonymous with rank, to do what it is doing now by consent of the military authorities, and more.

HOW MUCH IS A COUNTY AGENT WORTH?

This is a question that the *Agricultural Digest* asks and proceeds to answer by citing instances where the influence and helpful instruction of county agents has been responsible for the doubling of certain crops throughout an entire county.

It is to be noted that these highly successful county agents concern themselves with problems which their agricultural training qualifies them to handle: the selection and improvement of seed, the fertility of the fields; better methods of planting, combating potato blight and insects destructive to fruit, etc. No instance is cited of conspicuous success in the control or prevention of diseases of animals, and we believe no such instances can be cited, except where the men in charge of such disease prevention, control or eradication were veterinarians.

The resolutions on the subject of "County Agents" adopted at the Missouri Valley Veterinary Association, at its recent meeting at Kansas City, and published elsewhere in this issue, offer unanswerable arguments as to why measures for handling diseases of animals should be administered by veterinarians. If veterinarians throughout the country would arrange to have these resolutions published in their local papers it would redound to the credit and advantage of all concerned.

Army Veterinary Corps Miscellany

By a Staff Correspondent.

I CAN positively say that conditions with the army veterinarians are improving; the morale of the men is better now than it was some months ago; they seem to realize more than ever the importance and the seriousness of their duties, and nearly all of them are "going to it" with a will.

If the men who expect to take examinations for commissions in the Veterinary Officers' Reserve Corps, and those who have taken the examination in the past and await their commissions, and those who have their commissions in the Veterinary Officers' Reserve Corps and have not yet been assignd to active duty, and those who have been recently assigned, will get firmly fixed in their minds the *imperative necessity* of doing the hardest studying and the hardest work they have ever done in their lives during the first few months in the service, it will do more than anything else to smooth their way, and prevent discontent and discouragement.

In addition to their duties in taking care of sick animals, which is really the smallest part of the veterinary work, they must be constantly on the alert to prevent disease and disability in the animals and to keep them well and fit for service at all times. Work, work, work, and being everlastingly on the job from the time the animals are unloaded from the car until they are issued or shipped again, is the explanation of good records and low percentages of losses.

In addition to the foregoing, which might be spoken of as the strictly veterinary side of the veterinary officer's

Veterinarians in Co. 27, 7th Battalion, Medical Officers' Training Camp, Camp Greenleaf, Ft. Oglethorpe, Ga.: Majors E. B. Ackerman and D. H. Udall and Lieutenants C. R. Adams, J. G. Bailey, R. F. Bolenbaker, T. R. Boyer, H. J. Brotheridge, F. E. Brown, O. W. Brown, E. A. Cholvin, J. W. Claris, R. J. Coffeen, M. DeBooy, W. B. Dodsworth, L. C. Fish, F. L. Giefer, A. C. Grace, J. B. Hardenbergh, C. M. Haring, J. A. Harris, E. C. Hughes, J. N. Hunter, J. F. Jensen, W. D. Jensen, G. M. Jones, F. G. Kneup, R. Kunnecke, J. V. Lacroix, H. A. McCormick, W. G. McGuire, F. H. Mackie, F. X. Maguire, R. F. March, A. Moore, K. J. Moye, W. E. Muldoon, I. Myers, J. F. Olney, J. H. Patterson, H. B. Pruitt, T. T. Rundle, G. E. M. Smallbone, S. D. Stovall, J. R. Stifler, J. A. Summerville, J. M. Twitchell and I. C. Worsham.

duties, he is expected to know how to ride (equitation), to know army regulations, to know army veterinary service regulations, to know the customs of the service, to know how to handle men, be proficient with the pistol and rifle, to know drill, to know marching; he must also know how to properly fit harness, saddles, bridles, packs, and equipment, and he must know a thousand and one other things necessary in connection with his duties as an officer.

The veterinarian entering the service will have plenty to keep him busy for months to come, and mighty little time left to think of his hard lot or the whys and wherefores of things being as they are; and absolutely no time for "knocking."

It is only a matter of time till his worth will be known to those in a position to appreciate his services, and proper recommendations made for his advancement.

. . . . . .

Captain G. A. Hanvey, who did such splendid work in charge of the remount station at Fort Sam Houston, and who was briefly mentioned last month, has received a promotion and is now Major Hanvey. As mentioned last month, he is now in charge of Camp Taylor. Four of the ten veterinarians at Camp Taylor, trained by Doctor Hanvey, have been ordered away, presumably for over-seas duty, and new men are expected at Camp Taylor in their places.

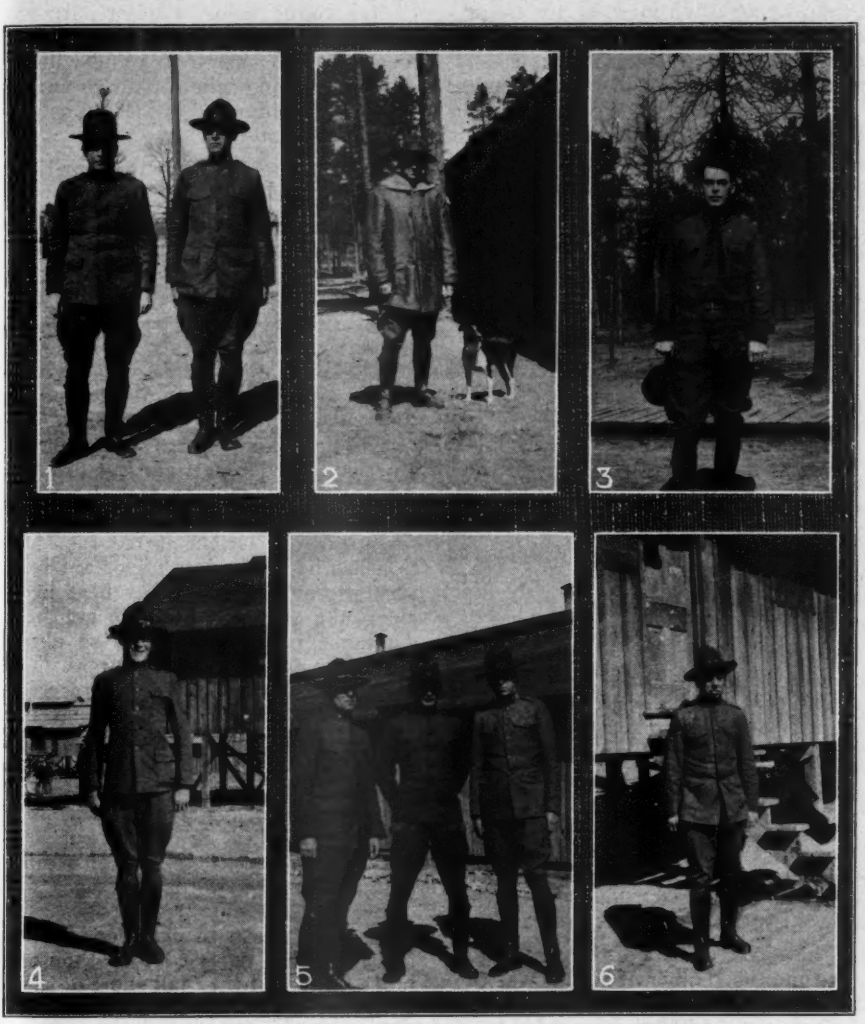
There are only six veterinarians at the remount station at Louisville, and they are under the command of Captain Jones, formerly a practitioner of Scranton, Pa. The work of the remount station is progressing nicely.

Camp Sherman Differs from the Others

The medical officers' training camp at Camp Sherman is decidedly different from anything at the other camps. There are fifty-two veterinarians in this company, known as Company 27 of the Seventh Battalion. Major Tyng, a medical officer, is in command of the division that includes Company 27, and by his treatment of the veterinarians has won their highest esteem.

Company 27 of the Seventh Battalion contains some of the country's foremost veterinarians. The men have practically no veterinary work to do. Their duties here are like those of a

school boy or student. In fact, this camp is nothing more nor less than a military school. The men are put through the severest kind of routine every day. From 5:45 a. m. till 9:30 p. m. they are on the go—drilling, attending quiz classes, listening to lectures, studying, etc. They do their own camp work, clean the barracks, and make up their own beds. They stand inspection and are subjected to oral and written examinations every day. They are under strict military discipline. In this school all ranks are abolished and lieutenants, captains, majors and other officers all look alike



Upper left hand: Majors D. S. White and E. B. Ackerman, at Camp Greenleaf. Upper center: Lt. J. B. McClellan, at Ft. Oglethorpe, Ga. Upper right hand: Lt. G. L. Fallon, of Cincinnati, O., at Ft. Oglethorp, Ga. Lower left hand: Lt. K. J. Moye, at Camp Greenleaf, Ga. Lower center: Major Ackerman and Lts. Steffen and Hardenbergh, at Camp Greenleaf: Lower right hand, Lt. Brotheridge, of Brooklyn, N. Y., now the "Sunny Jim" of Co. 27, Camp Greenleaf, Ga.

and are subjected to the same regulations and rules. Officers do not wear the insignia of their rank in this school.

The camp is indeed a revelation. I know most of the men here personally, and in my talks with them they were frank to admit that the training is going to be of great benefit to them. This group of fifty-two men, in my estimation, is being developed into the best possible state of efficiency, mentally, morally, physically and professionally. They are destined to become factors in elevating the profession to the plane it justly deserves to occupy.

Evidence of the keen interest taken by the men in their duties is splendidly displayed by the fact that the "Banner of Honor" of the center division of fifteen hundred officers floats in the breeze over Company 27's quarters. The Banner of Honor is a huge flag awarded weekly to the company ranking best in general deportment, appearances, sanitation, cleanliness, military drill, etc. The veterinarians captured the banner the second time they competed and doubtless would have taken it the very first week had not one of the officers failed to shave. This apparently insignificant item was chalked against the boys and lost them the honor for a week.

It is amusing to see such well known and prominent members of the profession as Drs. Udall and Muldoon, formerly of Cornell University, Doctor Haring of California, Doctor Ackerman of Brooklyn, Doctor Mackie of Baltimore, and Doctor Hardenburgh of Philadelphia, cleaning sidewalks, scrubbing floors, blackening stoves, washing blankets, carrying wood and polishing windows. The men go to the work with a will and they told me they were glad they had to do it.

The acting officers of the company at the time the Banner of Honor was captured were Capt. G. M. Jones, Lieuts. J. R. Stifler, and K. J. Moye, Sergeants I. W. Myers, H. J. Brotheridge, L. C. Fish and J. N. Hunter.

A Big Farrier School at Camp Pike

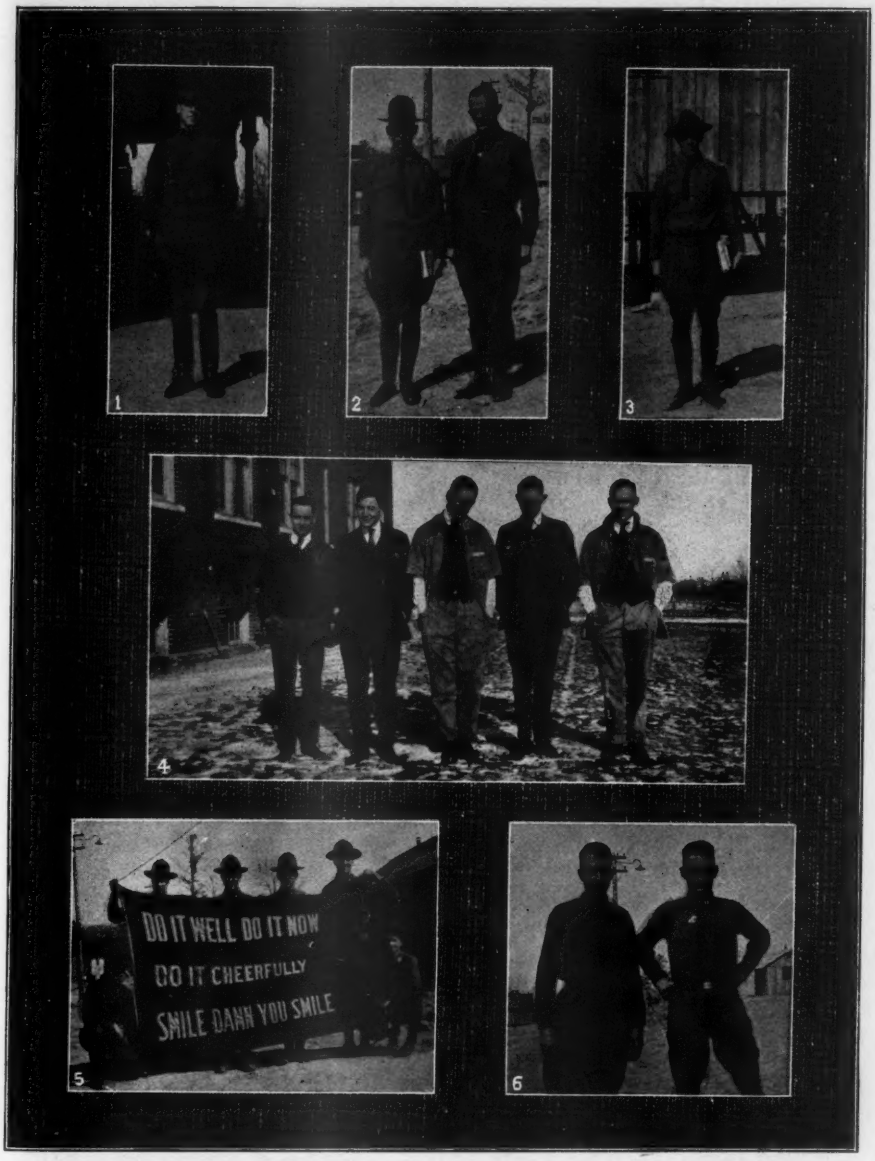
At the remount station at Camp Pike, near Little Rock, Arkansas, there are six veterinarians under the command of Captain A. O. Barber, formerly a veterinarian in the Quartermaster's Department of the army. I met Captain Barber at Fort Keogh, Montana, in September, and I was surprised and pleased to run across him again here. He has a splendid organization of live young men. Perfect harmony prevails under his command and the men are happy, contented and willing. A horse-shoeing school with an enrollment of one hundred is located at this remount depot.

A Veterinary Lot With the American Expeditionary Forces

A most interesting letter from Major L. A. Merillat reads in part as follows:

"After a somewhat eventful journey full of all kinds of interest I have finally landed at the place selected for my destination and field of activities. Its location must of course be left to the imagination, but as the imagination of an American newspaper man is a perfectly good one I am free to leave the details to you. In fact, I am beginning to believe that this strict censorship of our letters as regards location has become a less important military precaution, since our best news about the situation here we get from the home papers, which arrive about six weeks after leaving the press. The best information I have yet received about the location of our troops I gained the other day from an American magazine.

"We read an abbreviated edition of the *Chicago Tribune* and the *New York Herald* published in Paris, but welcome as they are, their one redeeming feature are the words 'Chicago' and 'New York' on the front page. The very names seem to make one feel at home and not deserted four thousand miles away, but they fall short of satisfying the appetites we have acquired for the big newsy dailies; and the big, bulky mass of sheets we used to find at the door every Sunday morning is now but a memory. This lack of news from home as well as from the region just over the hills to the East would be dis-



1. Lt. Benj. Moore, of Fremont, Neb., at Jefferson Barracks, Mo. 2. Major Udall and Lt. Wm. Muldoon, of the Cornell faculty, at Medical Officers' Training Camp at Camp Greenleaf. 3. Lt. C. M. Haring, University of Cal., at Medical Officers' Training Camp, Camp Greenleaf. 4. A quintet of seniors, Veterinary Dept., Iowa State Agricultural College. 5. Honor banner captured by the Veterinary Company at Camp Greenleaf. This prize was competed for by 1,500 officers in the various companies at the camp. Lts. Debooy, Brotheridge, Jones, Maguire, Dodsworth and Fish are holding the banner. 6. Lts. Hardenbergh, of Phila., and Steffen, of Tennessee, at Camp Greenleaf.

couraging if every day, every *hour* and every MOMENT were not full of entertainment that is novel, unique and sometimes astonishing and fearful to behold. 'Ce la guerre,' as the French merchant says when we object to their excessive charges.

"Nothing surprises one here; men go about their work as calmly content as if they were on State street, and our veterinarians go about theirs just as unconcerned as if they were holding a clinic on Wabash avenue. The only difference is that the assistants and the audience are sergeants and orderlies instead of veterinary students. We are of course out of range of the enemy's guns and therefore in no danger except from air raids and these, like the death of the late, lamented Mr. Twain, are greatly exaggerated. In fact, at long range war seems to be a much misunderstood institution. One hears of nothing but raids, drives and battles, when in reality these are just little side shows that interrupt the monotony of the main program. War at short range impresses one chiefly as consisting of a large body of men, spread over a wide territory, toiling away at their several vocations, disturbed suddenly now and then by unfriendly intruders who must be driven away before they mess things up too much. In short, it is common drudgery interspersed here and there with a lively event, just like a prize fight or a good football game comes along in civil life to afford amusement and a subject for current conversation. When the fray is over everyone is back to his task and the dull monotony begins all over again. It seems strange to the analytic mind why no graphic details are ever given of the activities which occupy most of an army's time and so much of the firing line. The answer may be found in our thirst for blood-curdling stories, but by ignoring the main establishment readers get an entirely erroneous conception of what war really is. To illustrate. The most vivid portrayal of the locomotive engineer flying through space on his locomotive gives no impression of the great railroad system behind him.

"I have been assigned to a large veterinary hospital overflowing with patients of all sorts, but chiefly with the great war scourge we have heard so much about since the war began, namely, mange. The rest are but the usual array of miscellaneous patients one would expect to find where horses are congregated in large numbers: poll-evils, quittors, fistulae of the withers, lacerated wounds, necrobacillosis, three distinct kinds of lymphangitis and the usual locomotory infirmities. There are no new problems the American Veterinary Service will not be able to manage except possibly lymphangitis, which ailment seems to have severely taxed our confreres during the last two years. We are too new on the ground to venture an opinion safely, but are co-operating with the Medical Department in a movement to discover some means of control. The veterinary service has as yet no laboratory for such investigations. The animals are in fair shape generally, although somewhat thin from a hard winter (and occasional shortages of forage) and the facilities for caring for them are good.

"There are two ways of handling mange in vogue; the dipping vat and the sulphur fumes chamber. The former is preferred by the French and the latter by the English. In this respect we are still non-committal and shall remain so until both methods have been given a fair trial in our own service, where daily observations can be made on a large number of subjects and checks. I have not yet been convinced that the old hand treatment is not as good as any, where help is abundant and pains are taken to apply the parasiticide application everywhere and as thoroughly as possible. The dipping vat of course gives the best results where help is scarce, but after all I have already found that this too is not as effectual as one would desire when animals coming out are not immediately rubbed well and at every part of the body to make the dipping solution enter into the skin recesses. Mere dipping is worthless or at least almost worthless without this good rubbing, and since the immersions must be re-

Top row, left to right—Drs. Yager, Worley, Nichols, Viears. Middle row—Drs. Hinkle, Lilley, Croll, Cox, Miller. Lower row—Drs. Brackbill, Behney, Capt. Jarman, Talbert, Sanders. These are some of the veterinarians on duty at 410 Scarrit Arcade, KansasCity.

peated six to eight times at intervals of four to eight days, the need of the hour is a more rapid method of cure.

"Whatever form of treatment is decided upon it must always be preceded by a thorough washing of the body to remove the scales and scabs. If this is done well the selection of the parasiticide is less important if rubbed in well and over the whole body including no less than six inches of the root of the tail. Our experiments with hand treatment administered side by side with the others will be reported later when enough comparative tests have been made to justify a statement. And of course no treatment amounts to much unless reinfection is prevented. Mange is a mighty disease. It is a fell scourge. Its control is of capital importance. Left unchecked it pesters, emaciates, destroys and would in itself demoralize any service needing horses.

"Having now had the rare pleasure of observing the veterinary service from Missouri to the trenches I am supremely contented with my military service and, come what may, I shall always feel the sacrifice has not been in vain."

Lieutenant E. C. Cavanaugh, Remount No. 3, Base Section No. 2, L. of C., France, writes enthusiastically of the remount and hospital work at the front, and of the eagerness with which he and his confreres read the AMERICAN JOURNAL OF VETERINARY MEDICINE, and of course, other word from America. Doctor Cavanaugh says that they are very busy with remount work and work in three large hospitals where they treat wounded and diseased horses, and notwithstanding they are in a foreign land, with starngeness on every hand, they have two distinctly American institutions—the American mule and the Ford car.

Major R. Vans Agnew has been ordered to El Paso as Division Veterinarian of the Fifteenth Cavalry Division. He has organized a full personnel of one hundred and forty-four men for the Fifteenth Cavalry Veterinary Corps. All of the men were transferred from the cavalry troops, so that Major Vans Agnew is able to start off with a trained personnel.

RECENT APPOINTMENTS, PROMOTIONS AND ASSIGNMENTS

To report to Depot Qm., Chicago, for inst. in meat inspection.

Second Lieutenants—P. F. Bittner, J. G. Conroy, P. H. Riedel, R. J. Flanagan, H. O. Keyes, P. E. White.

2d. Lt. W. A. Myers to Camp Fremont as Senior Vet.

2d. Lt. C. M. La Verne, previous orders amended to read 2d. Lt. L. C. Martin.

2d. Lt. W. A. Steinbach, previous orders revoked.

2d. Lt. R. Hyde to Ft. Leavenworth.

2d. Lt. W. A. Myers promoted to be a captain.

2d. Lt. R. Randall and 2d Lt. M. Ramsey, promoted to be 1st Lts.

2d Lt. C. R. Farmer to Camp Johnston with Remount Squadron 303.

E. P. Coburn appointed 1st. Lt.

M. Ramsey, aptd. 1st Lt. V. C. N. A.

G. W. Worrell to Fort Riley for duty, aux. remount depot No. 323.

Appointed as second lieutenants:

Leopold Hay, Faribault, Minn.

C. M. Haring, Berkeley, Cal.

William Frederick Wyllie, 302d Field Artillery, Camp Devens, Mass.

Floyd D. Marquise, Los Molinos, Cal.

David Berry Pine, Superior, Nebr.

Fay Franklin Russell, Jamestown, N. Y.

George Pierrepont Statter, Sioux City, Iowa, W. E. Muldoon, B. J. Cady, T. E. Carroll, I. W. Parks.

Lt. G. Glenn Miller appointed captain.

Capt. W. R. Pick to Camp Kearny as senior veterinarian.

E. P. Coburn appointed 1st. Lt. with rank from Feb. 11.

S. T. Pilgrim, first lieutenant.

W. O. Tucker to 7th U. S. Engineers.

G. H. Seaver to remount depot No. 322,

Promoted to first lieutenancies:

Camp Fremont.

J. L. Skiles, F. R. Bates, B. Bennett, C. F. Cord, R. L. Martin, M. D. Loy, T. B. Hinkle, N. N. Crawford, G. H. Corn, N. L. Townsend, J. K. Sullivan, H. Ticehurst, B. D. Stewart, F. S. Sharp, H. S. Pedue, D. C. Martin, C. H. Hart, J. E. Kendrick, S. A. Kamis, H. H. Harz, R. M. Hoffer, W. F. Dixon, C. Cox, G. R. Browne, R. D. Bolton.

2d Lt. H. R. Allmon to Leon Springs with 304th Cav.

2d Lt. C. W. Tittle to Leon Springs with 303d Cav.

2d Lt. B. L. Dawson to Leon Springs with 305th Cav.

2d Lt. M. H. Gandy assigned to 309th Cav.

2d Lt. J. W. Crouse promoted to be 1st Lt.

2d Lt. E. W. Hogg, 2d Lt. G. W. Grim and 2d Lt. C. J. McAnulty promoted to 1st Lts.

2d Lt. E. Wood promoted to be a Capt.

1st Lt. F. R. Lunn to Camp Gordon.

2d Lt. G. B. Taylor and 2d Lt. R. F. Smith to Camp Sherman.

1st Lt. Herbert C. Nichols relieved from duty at Depot Qm., Chicago and assigned to Camp Wheeler, Macon, Ga.

2d Lt. W. A. Shields to Camp Wadsworth.

2d Lt. P. F. Wallingford to Camp Humphreys.

2d Lt. E. A. Gilmore and 2d Lt. C. P. Wilson to Ft. Riley.

1st Lt. S. R. Ingram to Depot Qm. at Chicago.

2d Lt. A. A. Hoylman to Camp Sherman.

2d Lt. F. A. Pickett, 2d Lt. D. S. Shannon and 2d Lt.; N. L. Townsend to Depot Qm. at Chicago.

2d Lt. D. C. Peebles to Camp Upton Aux. Remount Depot.

2d Lt. G. R. Johnson to Camp Cody.

2d Lt. J. M. Herron to Camp Jackson.

Following to Camp Travis: 2d Lts. O. T. Atwood, I. C. Gauntt, J. M. Bowman, M. McKinstray.

2d. Lt. T. B. Carter and 2d Lt. C. C. Dobson to Camp Shelby.

2d. Lt. H. H. McIntyre to Camp Custer.

2d Lt. G. E. Melody to Fort Clark with 306th Cav.

2d Lts. J. E. Crowe, A. E. Joseph and B. M. Stahl to Camp Grant, Ill.

2d Lt. H. B. Wintringham to Camp Fremont with 301st Cav.

2d Lt. W. J. Kiff to auxiliary remount depot No. 333, Camp Johnston.

2d Lt. R. Sims to Camp Devens.

2d Lts. J. T. Boyce, F. W. Graves, O. C. Kackley, to Camp Taylor.

2d Lt. R. M. Walsh to Newport News auxiliary remount depot.

2d Lt. Baumgartner to Camp Taylor.

2d Lt. G. E. Bedwell to Camp Pike.

2d Lt. S. W. Harrison to remount depot No. 333, Camp Johnston.

2d Lt. H. L. Anderson to Del Rio, Texas, with 307th Cav.

2d Lt. G. W. Hamilton to Camp Custer.

2d Lts. C. D. Emerick, R. L. Wolfe and F. H. Schroer to Camp Dix.

2d Lts. L. E. Foster, S. K. Nelson and F. Middleton to Camp Dodge.

2d Lts. I. R. Vail and O. A. Cook to Camp Upton.

2d Lts. E. F. Karstendick, J. A. Creely, Pemberton and H. Puchett to Camp Pike.

2d Lts. D. L. Haley, B. R. Herring and R. E. Smith to Camp Dix.

2d Lt. G. A. Handley to Camp Wheeler with Aux. Remount Depot No. 311.

2d Lt. H. E. McLaren to Camp Upton.

2d Lt. L. T. Rogers hon. discharged.

Following promoted to be captains: 2d Lts. H. C. Gale, C. H. Hoffmire, N. G. Miller.

Following promoted to be 1st Lts.: 2d

Lts. C. O. Petry, J. W. Graham, N. E. Southward, C. W. Likely, R. H. Schrevengost, J. M. Casey, G. A. Wilson, L. K. Madley, L. A. Hock, C. H. Burdett, W. M. Decker, H. G. Beauman, H. F. Schreck.

1st. Lt. O. A. Barber, regular army, promoted to a captaincy in V. C. N. A.

2d. Lt. G. B. Huse, regular army, promoted to a first lieutenancy in V. C. N. A.

Capt. T. H. Edwards promoted to a majority.

1st Lt. F. R. Lunn, N. G., to 82d Div. Camp Gordon, as division veterinary.

2d Lt. R. F. Smith to Camp Sherman.

2d Lt. G. B. Taylor to Camp Sherman.

2d Lt. L. Flora to Camp Funston.

To Kansas City, reporting to Purchasing Qm., Remount Div.:

2d Lts. L. B. Adams, F. E. Cleaver, G. H. Elliott, E. S. Markham, R. M. Phillips, C. E. Steel, N. E. Baker, N. J. Elder, F. A. Lambert, H. W. Naylor, G. W. Moon, C. F. Whitson.

To Ft. Reno, reporting to Cmdg. Off. Remount Purchasing Zone:

2d Lts. J. E. Gilfillan, C. W. Reed, Jr., H. C. Kutz, J. M. Kerr, R. R. Reinhardt.

To Ft. Keogh, reporting to Cmdg. Off. of Remount Depot:

2d Lts. E. H. Berry, C. J. Cook, L. W. McElvea, C. F. Picking, W. J. Scanlan, L. E. Willey, E. S. Carter, O. W. Kirby, F. B. Perdue, F. C. Roach, J. R. Underwood.

2d. Lt. L. Levenson to Newport News, Va., to accompany cavalry horses to San Juan.

2d Lt. F. A. Krift to Camp Meade.

To report to Purchasing Officer for Public Animals at Eastern Zone:

2d Lts. G. S. Chase, J. H. Muller, E. F. Schroeder, G. A. Hazel, L. N. Peterson.

2d Lt. T. W. Munce to Governors Island.

2d Lt. C. E. Caulfield and 2d Lt. P. A. Rex hon. discharged.

2d Lt. F. S. Klein to Camp Hancock.

Capt. G. A. Lyttle promoted to be a major.

1st Lt. J. T. Little promoted to be a captain.

Following promoted to be 1st Lts.:

2d Lts. J. T. Connelly, E. A. Dean, J. D. Eastwald, E. A. Froshaug, L. Levenson, L. I. Lucey, D. J. Meador, J. W. Miner.

2d Lt. R. M. Mullings to New York as meat inspector.

2d Lt. H. B. Nixon to Camp Sevier.

To second lieutenants: H. P. Bonnikson, M. M. Brown, E. B. Cockerton, E. O. Geisel, E. Kernchan, J. R. Renfrew, E. C. Martindale.

Capt. C. W. Greenlee to St. Louis, Med. Supply Depot.

Capt. W. W. Richards to Camp Sevier.

Following promoted to be 2nd Lts: L. P. Johnson to auxiliary remount squadron No. 302, Camp Johnston; O. Archer to Camp Logan, J. B. Barnes, M. L. Boyd, W. A. Bright, F. N. Jenkins.

R. S. Mourning and W. M. Roth to auxiliary remount No. 329, Camp Travis.

L. Flora to Camp Funston.

J. E. Noonan and M. F. Severovic to auxiliary remount depot No. 329, Ft. Houston.

Following promoted to be 1st. Lts.: 2d Lts. L. A. Mosher, M. C. Smith, R. S. Tillie, R. G. Moore, W. Smith, R. C. Smith, B. C. Talley.

2d Lt. O. H. Cripe to Camp Bowie with Aux. Remount Depot 328.

2d Lt. A. L. Peterson, promoted to be a 1st Lt. in N. A.

1st Lt. C. E. Cook, to Southern Purchasing Zone as vet.

Following second lieutenants promoted to be first lieutenants: E. S. Allen, H. L. Blackburn, G. F. Campbell, C. M. Cowherd,

Lieutenant R. K. Knighton, V. C. N. A., Utah Heavy Field Artillery. This is one of the seventeen reactors to the opthalmic mallein test which Dr. Knighton found among the horses in his troop. They were returned from the Mexican border last spring. The animal shown also reacted to the subcutaneous test. The ophthalmic reaction in this instance was unusually well marked.

C. R. Farmer, E. S. Garr, I. O. Gladish, W. L. Herbert, C. Hoffman, H. H. Howe, J. H. Kintner, E. Kropf, S. M. Langford, E. Lapple, F. G. Lillyman, H. E. McCulloch, R. E. Muller, R. M. Mullings, N. S. Nutty, C. E. O'Neal, S. D. Stroly, H. J. Weaver, C C. Weeks.

A WELL DESERVED PROMOTION

Former Captain John H. Gould, veterinary corps, 88th Division United States Army, stationed at Fort Dodge, Iowa, is receiving congratulations on his recent promotion to a majority.

Major Gould is a native of the state of Minnesota, born in January, 1877. He served in the Spanish-American War in the Twelfth Minnesota Infantry. Later, he was graduated from Ames as a doctor of veterinary medicine, in June, 1902, since which time he has been a member of the American Veterinary Medical Association.

After practicing at Jackson, Minnesota, and being admitted to practice in both Minnesota and Iowa, he passed the examination for veterinarian in the army, and in January, 1903, was assigned to the Eleventh Cavalry. After two months service at Fort Snelling he joined his regiment in the Philippines, returning to the United States in March, 1904.

He was stationed at Presidio, Fort Riley and Fort Des Moines, where he made an excellent record. Ordered again to Des Moines, he was again with his regiment, the Eleventh Cavalry. He took the regular course at Drake, and was graduated in June, 1907.

After that time he served at Forts Ethan Allen, Vt.; Oglethorpe, Ga.; ten months on the Texas border; in the Colorado strike zone; and again in the Philippine Islands in June, 1915, where his special duties took him all over the islands and into China and Japan.

He returned to the United States in November, 1917, and was assigned to Camp Dodge, becoming a captain shortly thereafter.

Major Gould's promotion has been honestly won by earnest effort and praiseworthy service, and as his looks indicate he is every inch a soldier and a gentleman.

A SOLDIER FROM SOLES OF HIS SHOES UP

Major William V. Lusk graduated from the Veterinary Department of the Ohio State University, in 1892. After following a general practice for about two years, he joined the Second U. S. Cavalry, in December, 1894, and served with his regiment at various western posts until 1898, when he accompanied it to Cuba, where he saw some very hard field service. Later they went to the Philippine Islands, where the Second Cavalry was actively engaged in restoring peace conditions. In 1907 he with the Second Cavalry was engaged in the winter campaign against the Ute Indians. When the trouble with Mexico started his regiment was one of the first there and the Major was on the job as usual. He has been through many hard campaigns and has seen the army veterinary service from many angles. Major Lusk is an expert with the army rifle and pistol and has been mentioned in orders and has received several medals for his ability in that line. He is said to be one of the most thorough and exacting veterinary inspectors in the service. Men who know him well say that he is a fine executive and his ability was tested when he was called on to act as regimental adjutant in times of need. The fact that he served twenty-two years in one regiment without break will attest to his popularity with army officials. A soldier from the soles of his shoes up, a gentleman and a veterinarian of undoubted ability.

POINTED OPINIONS ON LIVE TOPICS by Readers of Veterinary Medicine

It is in reports like those of this department that the current history of the progress of veterinary science is written. Are you leaving a record of your experience which will help others, as you have been aided by these and other clinical reports? If not, you are earnestly invited to contribute from your experience that this department may be of the greatest service to its readers. By so doing you will earn the lasting gratitude of those who are aided by your suggestions.

Proposed Abortion Law

REFERRING to the report of Doctors Giltner and Potter in the March issue of the Journal under the caption of contagious abortion in cattle. The authors are entitled to unstinted credit for preparing and presenting in such a clear and concise form, a summary of the opinions of many veterinarians regarding the present status of infectious abortion in its economic and sanitary relation to the cattle breeding industry. Unfortunately, however, there seems to be no unanimity of opinion upon a single phase of the disease; consequently it would be impossible to draw a stronger indictment against the veterinary profession for lack of knowledge concerning a disease so prevalent and widely spread throughout the cattle breeding areas.

While practically all veterinarians whose opinions are worthy of consideration concede the existence of an infectious disease, characterized by abortion as a sequel, there seems to be a total lack of initiative expression as to fundamental factors involved in protection or control; therefore, for practical purposes in the absence of a knowledge of effective remedial or immunizing agents, why not concede without question that the disease is infectious, and that the infected cow is the principal factor involved in disseminating the disease, and that the logical means of controlling the disease would be by way of controlling the disseminator. This could be accomplished largely by restricting the sale and shipment, for breeding or dairy purposes, of all cows known to be infected. The term infected is applicable to all cows and heifers exceeding the age of two years, which have failed to drop a living calf at full maturity within a period of six months previous to date of sale or delivery, or that said cow or heifer shall be within three or four weeks of completing a full period of gestation. While the direct result of state laws, embodying the above suggestion, would, of course, be negligible to a large degree as a positive factor in the control of infectious abortion, the direct and positive effect of such a law, however, would be that the average breeder or dairyman would become involuntarily convinced of the fact that abortion in his herd was evidence of the existence of an infectious disease, and that a market for his surplus stock would be restricted in exact ratio to the extent to which the disease prevailed within his herd. In addition to educating the owner of an infected herd, the prospective purchaser of infected cows would be protected to a large degree in spite of his ignorance, as to the danger of making indiscriminate purchases at public sales, stockyard centers or from dealers who buy and sell regardless of disease or consequences following their unrestricted privilege.

The greatest difficulty encountered

by live-stock sanitarians in promoting ways and means of protecting live-stock producers, through inhibiting the spread of infectious diseases from common and positive sources of infection, is the general lack of interest and understanding upon the part of those who would be directly benefited thereby. On the other hand, vociferous protests and political pull is always brought to bear in behalf of those who profit through lack of sanitary laws, or their enforcement for the protection of those who are otherwise unable to protect themselves.

For the purpose of establishing a basis for the enactment of uniform laws for the various states for the control of active and positive disseminators of infectious abortion, I submit the following draft of a law in tentative form which I am convinced would serve a practical purpose and receive the endorsement of every reputable breeder and dealer in cattle who has had occasion to note the ravages now occasioned by the unrestricted spread of infectious abortion in cattle.

Proposed Abortion Law

No cow or heifer, except unbred heifers under two years of age, shall be imported into Illinois for dairy or breeding purposes. (1) Unless said animal is within four weeks of completing full term of gestation; or (2) Unless said animal has within a period of six months given birth to a live and fully matured calf; or (3) Unless the owner makes affidavit, certified by the live stock sanitary authorities of his state, that his herd and premises are free from infectious abortion. (4) To cows or heifers sold at public auction within the state of Illinois the same rules are to apply.

The proposed law should also be made applicable to sale and shipment of infected cows within the various states.

In the event that no progress can be made toward the control of infectious abortion within the next few years, what will be the effect upon the cattle breeding industry? What valid objections can be raised against utilizing at this time the only available and practical means at hand, namely, by controlling the sale of aborting cows for purposes other than slaughter? The following comments from the live stock press are indicative of the general interest being taken in the problem:

As described by Dr. Dyson, such a law would not be intended to absolutely control this disease, since absolute control would be impossible on account of lack of knowledge concerning it. It would simply require a man to state the truth and to prevent his unloading a herd of aborters on an unsuspecting purchaser.

There are still several loopholes through which infection might be spread, but it is the belief of Dr. Dyson that the dispersal sale is perhaps the worst offender. Such a

Members of the medical profession in David City, Neb., take off their hats to Dr. S. B. Manning in the matter of office and appurtenances. The building is faced with brown pressed brick, steam-heated, electric lighted,steel ceilings throughout, tile and cement floors, and is situated on one of the principal streets in the central part of the city.

law would perhaps mean a loss to men who have such cattle for sale, but on the other hand it would mean a tremendous gain to men who were prevented by it from purchasing infected cattle.

"I believe a law such as the state veterinarian is proposing to control contagious abortion is a splendid idea and no honest breeder can find a proper objection to it." Thus spoke a breeder of dairy cattle in the northern Illinois dairy district. He continued: "I know of considerable abortion among neighboring herds, and I myself have lost several calves recently from it. A short time ago an entire herd was disposed of near here and I know for a fact that practically every cow was aborted this winter previous to that sale. I thought at the time that it was a shame to scattter those cows over the country so that practically every herd they go into will become infected with this disease. A good many herds perhaps will get it in this way which have been free from it heretofore.

"As I understand this proposed abortion law, it simply compels the seller to tell the truth about the cows he has for sale. He ought to do that, anyway, but if he will not, then I favor a law of this kind which will require it of him."

O. E. Dyson.

Springfield, Ill.

Office of veterinary hospital of Dr. S. B. Manning, David City, Neb. The finish is oak; walls rough finished, and tinted brown. No drugs or instruments mar the quiet restfulness of the office. A separate room is reserved for them.

RECOVERIES FOLLOWING QUESTIONABLE METHODS

Sometimes the farmer beats the veterinarian to it and takes all the honors. A case occurred in my practice. A bay mare, owned by a farmer near me, tied alone, standing on a cement floor, bedded with straw, was well at night October 16, 1917. In the morning her hock was swollen, but not extensively, most of the swelling being on the inside. There was very little fever and no great amount of soreness on palpation. The animal was unable to flex the hock, and could not use the foot without great pain. The stifle was normal; no diagnosis was made.

The hock was bandaged and the owner kept up a continual application of hot water during the day. I called October 18: horse no better; owner away. I left orders to apply a hot poultice that night, but my order was not carried out. Instead, hot lard and turpentine were applied. The next morning the horse was practically well. The swelling was gone, all but a slight synovial distention on the inside of the hock. The turpentine and lard effected a cure, although I honestly believe that if my treatment continued it would have produced the same result.

In another case I was called to see a horse with a sore eye. I left instructions to bathe it with warm water, followed by the injection of zinc sulphate and boric acid. The eye showed little improvement, and after several days the owner took the case in hand. He put turpentine in the eye and the next morning it was well. The man should have been put in jail for cruelty to animals and then liberated because of his good results. It is a fact that some of these men get good results from their crude efforts, while we dare not use such methods for fear of criticism and fatal results.

C. L. Whittington, V. S.

Luverne, Iowa.

PERVERTED DIGESTIVE FUNCTION IN CALVES AND LAMBS*

In searching veterinary literature from Genesis to Revelations I have been unable to find a word of enlightenment on the above subject.

This ailment is observed in calves and lambs from three to twelve weeks old, or at the time when they cease to depend wholly upon a milk diet, and begin to eat solid food such as grass, hay, straw, etc.

Some calves are kept in a dry lot on a strictly milk diet until they are two or three months old; while others have access to all kinds of food from birth. To this difference in environment can be attributed the great difference in time or age at which this trouble occurs.

Tender green grass does not seem to be so liable to cause digestive disturbance as matured grass, hay or straw. My observations have been that overripened blue-grass tops are a very potent factor in producing this trouble, especially in lambs.

In calves that are confined for the first few weeks in dry lots, on a liquid diet, and afterwards turned out to pasture, it seems that almost any kind of forage will cause perverted digestion. In one instance five calves that had been confined, to a dry lot and then turned out to grass shortly all became afflicted, although not all on the same day.

As a general rule, in calves this ailment occurs in solitary cases while in lambs several are usually afflicted at the same time. This difference no doubt can be accounted for by the greater number of lambs of the same age compared to the number of calves of one age.

This trouble is more prevalent in dry seasons, due no doubt, to the tough and woody condition of the grass.

While there are only a small percentage of calves born during the winter months, a greater percentage of them become afflicted than of those born during the spring and summer months.

In the breeding districts this disorder is far more prevalent than is generally supposed, but on account of it not being contagious and there usually being only an isolated case now and then the average farmer takes but little trouble to search for the cause.

While I have no exact data, it is my belief that at least five per cent of calves become afflicted, and without treatment nearly all so afflicted, die.

In order to get a better understanding of the cause of this ailment we will consider a few theoretical ideas, on digestion and rumination. Physiologically speaking the rumen is very small and poorly developed in the young animal while living wholly upon a liquid diet; in fact it may be said that the rumen is dormant and inconsequential so far as the welfare of the animal is concerned for the first few days of its life.

If true, as claimed, that there are no alkaline secretions while the young animal is living on a milk diet, these alkaline glands are also dormant until the animal begins to partake of solid food.

The act of rumination is wholly unknown while the animal is on a liquid diet. When the animal begins to partake of solid food three radical changes are brought about.

1. The small and inactive rumen must expand and begin its peristaltic action.
2. The dormant alkaline glands must begin secreting their juices in order to assist the digestion of these solid foods.
3. The act of regurgitating and remasticating of these solid foods must begin.

These three things are all of vital importance to the well being of the young animal, and, if one of them fails in its function a derangement of digestion follows. That in this trouble there is a derangement of some of these functions is certain, and, as a result we find grassy or woody concretions resembling hairballs in the stomach and bowels. These balls range in size from that of a small marble to that of a hen egg.

Symptoms: The animal is gaunt, weak, eyes staring, grinds its teeth and is delirious. These symptoms are usually preceded by constipation, although some attacks may show a slight or profuse diarrhea.

*Presented at the Ohio Valley Veterinary Medical Association meeting, Terre Haute, Ind., February 26, 1918.

In a typical case where the calf is nursing its mother each night and morning, he may nurse all right in the morning, but at night when turned to his mother he walks up to her, gives the udder two or three hunches, grinds his teeth and refuses to nurse. Later he will nose around the udder as though unable to nurse. Saliva drips from his mouth; he looks wild out of his eyes, staggers around, falls down apparently in a fit, gets up and walks or runs into the fence only to fall again; after a few more fits, death occurs.

In some cases the animal may stand in the corner and bellow as though it were starving.

A very peculiar thing in the more severe and prolonged cases that recover is, that they will absolutely refuse to again nurse the mother.

Similar symptoms are noted in lambs, although they succumb more quickly than calves.

The treatment consists of oil and stimulants given in small doses three or four times a day and continued until the bowels are thoroughly cleared. In severe cases, three or four days' treatment may be necessary in order to obtain the desired result.

After the acute stage has passed it is advantageous to follow up with lime water for a few days during convalescence.

In prolonged cases the calf should be given a quart of fresh milk as a drench, three or four times a day, as they sometimes die from sheer starvation because of the deranged condition of the brain.

Sidell, Ill. GEO. B. JONES.

RABIES NOT ALWAYS EASY TO DIAGNOSE

The difficulty in making a positive diagnosis in all cases of rabies, and the ease with which one may be misled by lack of symptoms commonly exhibited in rabies and the fact that a true case of rabies may occur without the symptoms commonly seen, is well illustrated by the following cases.

Case 1. I was called to see an English bull terrier two years old, and found it lying motionless before a stove. When questioned as to rabies symptoms, the owner gave a negative reply to each. Her replies gave not the slightest indication that the dog was suffering from rabies.

The dog had been troubled with vomiting; would eat but could not retain the food; bowels and kidneys were acting normal. Upon examination the eyes appeared normal; temperature, pulse and respiration normal. A close examination disclosed no indication of rabies. Pressure on the abdomen elicited soreness in the stomach; this with the continued vomiting led me to make a diagnosis of gastritis, and I prescribed accordingly. Twenty-two hours later I was called and found one of the most pronounced cases of dumb rabies I have ever seen. The dog was killed, and examination of the brain confirmed the diagnosis of rabies.

Case 2. A little black cur, the size of a Spitz, was brought to the hospital with a history and symptoms the same as Case 1. All efforts to elicit evidences of rabies were futile. The dog appeared to be perfectly normal except for vomiting and soreness of the stomach. Remembering Case 1, I was on my guard. I made a diagnosis of gastritis and treated it accordingly, but warned the owner to be careful and watch for symptoms of rabies.

About eleven hours later, the dog was reported no better and was vomiting more frequently. Later the owner brought the dog to the office. His eyes were clear; temperature, respiration and pulse normal; bowels and kidneys normal in action.

I could see no reason to change my treatment, but I again cautioned the owner to be on the watch for rabies symptoms. The following day the owner called me and said the dog could not shut his mouth. I immediately went over and found a pronounced case of dumb rabies. The dog was killed and examination confirmed the diagnosis of rabies.

Case 3. An English bull terrier, about five months old, was brought to the hospital to be taken care of for a day while the owner was moving. The dog appeared normal when it was handed to me and from me to the attendant, who was told to put it in a cage as a boarder, but he snapped at the attendant's hand on the way to the cage. After the owner's

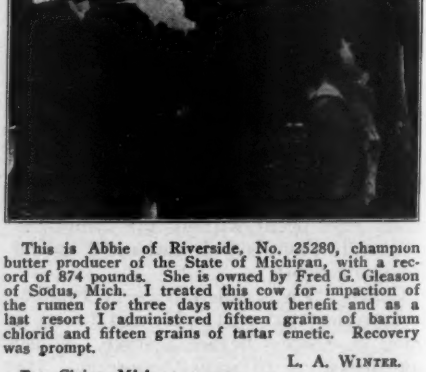
departure, I took the dog out of the cage and led it about the yard so it could see the other dogs, and it showed a marked desire to snap at each one as he came near. I called the owner and told him my suspicions and he laughed at the idea, saying the dog had been perfectly normal when brought to my place. The dog died before midnight of the same day and I learned from the owner that three or four days previous while bathing the dog he had received a scratch on the arm from the dog's nails. A brain examination showed the presence of negri bodies.

Case 4. A fox terrier was brought to the hospital, with a history of having bitten three children. It was placed in a cage and a close watch kept of it. It acted perfectly normal, except that at intervals of one or two hours its right front leg would start twitching and moving backward and upward along its side until it would be nearly over the back, when the dog would fall over and get up apparently normal. This continued over a period of five days, with the dog apparently in good spirits, conscious of everything, and seemingly normal in all its functions. It did not snap or bite at anything, and it showed no weakness until the fifth day, when it died very suddenly. A brain examination showed rabies.

Case 6. A brindle bull terrier, six years old, was noticed by the owner to be nervous. It moved from place to place; its mouth was exceedingly moist and it seemed to have difficulty in swallowing. Its temperature, pulse and respiration were normal. It would obey commands, would play and it appeared to be perfectly normal, except for excessive salivation. I could make no diagnosis, so told the owner to watch the dog during the day and report any new symptoms that might develop. About twelve hours later the dog was brought back with the statement that he was even more restless than before. The dog had been blind in the right eye for two years, and I could see a slight nervous twitch in that eye and in the right ear, and the right front foot was held slightly off the floor at times. The owner said these were symptoms commonly exhibited when the dog was suffering any ailment and wanted sympathy. She stated also that the dog was always locked in her room through the day and exercised on a leach night and morning and could not have possibly had an opportunity to get bitten except one week previous to her visit to me, when he ran away and was away over night, which was of no value in diagnosing rabies. I took charge of the dog and watched him very closely. He grew rapidly worse. He was very nervous, constantly shaking his head and staggering from side to side, could eat and drink, but seemed to suffer intensely with pain in the head. He was perfectly conscious and would obey orders, but had a pathetic appearance. He soon collapsed and passed into a state of coma, and died within forty-eight hours from the time the first symptoms were noticed. The brain was removed and examined by a pathologist, and to use his own terms "was full of bugs." The owner had used her bare hand in wiping the saliva from the dog's mouth, and upon examination a wound was found and she was advised to take Pasteur treatment.

Three or four days later she called me and told me that about three weeks previous to the dog's illness, he had slipped his collar and ran away from her and was gone for two hours, and when he returned the inner surface of the lower lip was lacerated as by a dog bite. This probably accounted for the infection.

Kansas City, Mo., J. C. FLYNN., D. V. S.



This is Abbie of Riverside, No. 25280, champion butter producer of the State of Michigan, with a record of 874 pounds. She is owned by Fred G. Gleason of Sodus, Mich. I treated this cow for impaction of the rumen for three days without benefit and as a last resort I administered fifteen grains of barium chlorid and fifteen grains of tartar emetic. Recovery was prompt.

L. A. WINTER.

Eau Claire, Mich.

AN APPEAL FOR EQUINE FLESH AS A FOOD*

By W. Horace Hoskins, D. V. S.

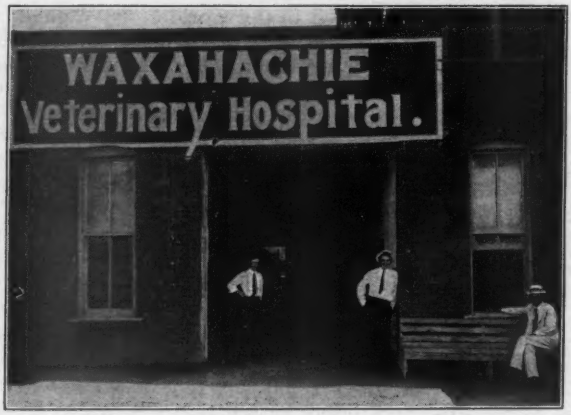
WHEN conferences are being held as to the amount of whale meat that can be secured to meet meatless days, and these inhabitants of the deep live wholly a cannibal life; when the once despised shark meat is quoted at 20 cents a pound, why should anyone shudder at the consumption of equine flesh, when the horse lives on the richest cereal grains and the most succulent grasses of the plains and mountains of the West, where the air and sunshine are the purest and the valleys and hills are watered by the freshest and least-soiled water of our land?

Why should we send men to contend with the perils of the deep to secure whales when on our Western plains we have upward of two million of horses, with rich and nutritious flesh, ready for the slaughtering pens?

Why should we seek shark meat at 20 cents a pound when clean, wholesome, equine steaks can be placed upon our tables at 15 cents per pound?

Are we not guilty of serious neglect and almost criminal indifference to the well-being of millions of our people in the great cities who have had access to this meat in their own lands and are denied it in our own country? What is our answer to the daily story of many weeks of fifty deaths a day in our great metropolis from pneumonia, and almost a like number from tuberculosis, that are contributed to largely by an insufficient amount of animal food because of the actual scarcity, and the inevitable high prices?

How are we to answer future generations if the little children of our day are denied a sufficient quantity of milk for their proper sustenance and growth, because of the high price and dangers of contamination; and, at the same time, deny their mothers sufficient animal food while they foster, conceive and suckle these babies that are to be our future men and women, when right at our doors in these meatless and wheatless days is a vast, untouched source of animal food, rich, clean, wholesome, free from tuberculosis, the consumption of which would release hundreds of thousands of acres of land just ready for the tilling to lessen our wheatless days?



Hospital of Dr. Frank B. Barnes, Waxahachie, Texas
Dr. Barnes in the center.

Why should we have to cry out in our land for relief and plead for legislation, national, state and municipal, to re-establish federal and to establish state and municipal equine meat inspection?

When Germany from month to month carefully figures the dimensions and weight of her dogs as part of her available food supply; when her women will visit the interned camps of American prisoners and offer to prostitute their bodies for a cake of soap, because of the scarcity of fat; when every ounce of equine fat is conserved for food, and every pound of horseflesh given out with the same exactions as

*Presented before the Annual Meeting of the Veterinary Medical Association of New Jersey, Paterson, Jan., 1918.

any other kind of animal food; when her highest skilled veterinarians are commandeered to save every hoof possible, and only those horses taken in battle afford any contribution to her depleted supply at the battle front! While agriculture has forced her to make beasts of burden of her women, to cultivate her fields and maintain her crops, we in America stand aghast at our great animal food shortage, and because of our past prodigality and wastefulness in our beef supply, seem dazed and perplexed, when right at our doors stands ready for sustenance, one of the richest, cleanest, most nutritious sources of animal food in the world.

Worse than wasteful we are nearing the line of criminal negligence, for we cannot dodge the responsibility of the unparalleled losses from pneumonia and tuberculosis occurring in our land just now; so largely contributed to by insufficient animal food, because of the high price of beef, mutton and pork, and the relative low wage of those who work.

We recall with seeming surprise and astonishment that our soldiers in the Civil War subsisted many weeks and months on horseflesh, maintaining their strength and courage.

We forget the Siege of Paris, when for six months her people were sustained by horseflesh, her chief animal food.

We are unmindful of the fact, that the American Indian preferred the meat of horses to that of buffalo, that they followed to death, when Uncle Sam had no condemned horses for their sustenance.

Almost immune to tuberculosis the condemnation of carcasses from this disease on the killing floor would be practically nil, while 9 per cent of the hogs killed under federal inspection are sent to the rendering tank as unfit and unsafe for food because of generalized tuberculosis. Upward of 3 to 5 per cent of our beef cattle go the same way, from the same cause, and yet this has been the white man's as well as the red man's plague in every period of American history.

The only disease that gives us any serious consideration as to the wholesomeness of equine meat, is glanders, yet this disease is so rare in man that a recognized case in our land is of sufficient interest to have the story graphically told by the associated press in every paper in the country.

Stranger than fiction is the fact that a large per cent of the condemnation of Uncle Sam's horses in the army and on the Indian borders was for glanders; yet the Indians ate these carcasses uncooked and the records show no prevalence of glanders in the death records of these early occupants of our land.

Equally interesting is the fact that cooking the meat to the usual temperature of a broiled steak, makes it innocuous so far as any danger of transmission is concerned.

Again, it is a recognized scientific truth that muscle fiber is resistant to any contamination of this form of disease.

Meatless days, wheatless days, are a matter of serious concern, in so wasteful and prodigal a nation as ours has been.

Hides, horns and hoofs, that brought easy wealth and pelf, as the flesh rotted and the bones bleached on our western and southern plains, as we lived in a fool's paradise, and indulged in "Mulberry Seller's dreams," that there would ever be a day of reckoning.

The question is presented to us with fearful force: Shall we let 2,000,000 horses, fed on the richest grasses of our fertile plains producing the richest foods of the safest and most wholesome kind, grown in the open mountain range air, free from the dangers of contamination of domesticity, and enriched in nutrition by their muscular activity as they roam over unfenced lands, gathering rich succulent grasses from non-infested pastures, or shall we accept the dangers of the other than beech-nut fed hogs, or the products of contaminated pens, stables, barnyards, and chicken roosts and then boast of our intelligence and keen perception?

Shall we continue to encourage every moral wrong that has kept pace with

the economic wrongs of our land, and allow millions of pounds of wholesome food to go to waste, deny to the animal food raisers of the West, these pastures for sheep and cattle, or deny to our own people and lift our pleas to God for more plentiful and abundant crops, when these horses are roaming over thousands of acres that ought to be tilled and growing grains to save the lives of millions of our brothers and sisters in the war-torn, war-crazed, poverty-stricken, hunger-stricken allied countries?

Shall we continue to condone every moral wrong, back of which is an economic one?

BOOK REVIEWS

Poultry Diseases

B. F. Kaupp, M. Sc., D. V. S.

Poultry Investigator and Pathologist, Animal Industry Division, North Carolina Agricultural Experiment Station, North Carolina State College of Agriculture and Engineering. Pages, 240; 80 illustrations. Price, $2. Published by the American Journal of Veterinary Medicine, Chicago.

This work is in part a revision of Veterinary Medicine Series No. 2, "Poultry Diseases and Their Treatment" by the same author, but the subject matter has been entirely rewritten and rearranged, and new material added at least equal to if not greater in amount than the original volume. The author has devoted his time exclusively to investigation in the field of poultry pathology since the appearance of "Poultry Diseases and Their Treatment" three years ago, and in the present work has embodied the results of this investigation.

Perhaps the most important addition to the new work is the treatise on anatomy of fowls. This although brief for a discussion of anatomy is surprisingly comprehensive. The discussion of a number of new diseases of fowls has been included in the present work and the discussion of diseases in the original work has been in many cases extended and the therapy given in not a few instances has been altered. Many additional illustrations included in the new work have enhanced its value materially.

The original work enjoyed an unusual sale among veterinarians and has unquestionably contributed much to the profession's knowledge of poultry diseases. The demand for information on this subject is increasing all the time and in the belief that the present work will meet this demand, more fully than anything else, the prediction is made that is will be cordially received and achieve marked popularity.

Agricultural Bacteriology

By. H. W. Conn, Ph.D.

Formerly Professor of Biology, Wesleyan University. Third Edition, Revised by Harold Joel Conn, Associate Bacteriologist, New York Experiment Station. Pages 357; 63 illustrations. Published by P. Blakiston's Son & Co., Philadelphia. Price, $2.00.

This work is a study of relation of germ life to the farm with laboratory experiments for students. There is a further study of micro-organisms of the soil, fertilizers, sewage, water, dairy products, miscellaneous farm products and diseases of plants.

Unfortunately at the time the second edition became exhausted, the death of the author made it necessary for someone else to undertake the task of revision. This has been successfully accomplished by the author's brother, Harold Joel Conn, associate bacteriologist, New York Agricultural Experiment Station. In adding new material made necessary by the growth of agricultural bacteriology, the original author's point of view has been kept constantly in mind, and it is believed that the present edition is very nearly as he had planned it.

The growth of agricultural bacteriology during the past eight years has been fully as great as during the period between the first and second editions of this work. the most changes have been made in sections dealing with subjects in which the growth has been the greatest, i. e., soil bacteriology, control of milk supplies, plant disease, and laboratory technic. The new knowledge acquired in regard to plant disease has made it necessary to rewrite the list of fungus diseases given in the second edition. In regard to the control of milk supplies, great changes have been made, the teachings of today seeming to be in many respects in direct opposition to those of five or six years ago. Other minor changes throughout the book have

been made to bring it up to date. These alterations in addition to the new material, make it a practical handbook for those desirous of keeping abreast of the times in the study of agricultural bacteriology, and will make it of value for some time to come.

CONTROL OF HOG CHOLERA

(Continued from page 160)

in force preventing the dealing in diseased hogs within the state and requiring the burning of carcasses of hogs that die of any disease whatsoever. This law should plainly forbid the sale or offering for sale of hogs affected with any disease, and should require the owner to promptly burn hogs that die of any disease. A law is not sufficient which is limited to hogs that are affected or die with cholera. It is frequently impossible to prove whether the owner knew the hogs had cholera.

Furthermore, without fail, a law should be in force actually prohibiting any except graduate veterinarians who have been careful to become proficient in the vaccination of hogs, from injecting virus into hogs under any condition whatsoever. It is true that a few laymen will succeed with hog vaccination. The claim is truthfully made that some laymen will do the work as well as some veterinarians. The remedy does not lie in permitting general vaccination by laymen at will, but the law should provide for revoking the license of the few veterinarians who fail to do this work in the proper manner. Unless those engaged in vaccinating hogs against cholera are held positively responsible under the law, vaccination will continue to be a spreader of hog cholera, and possibly go a long way toward aborting the good results from any sort of hog-cholera control work.

Make Hog-Raising Safe

There never should have been any debate about the methods to pursue in controlling an outbreak of hog cholera. The thing to do is to stop its spread. When a fire breaks out, no one stops to debate whether it shall be extinguished by the use of the hose, hand grenades or water carried in buckets. Every available force is immediately brought to bear. Likewise, when an official goes to see a herd of hogs affected with cholera he ought to bring everything to bear that he finds necessary to prevent the spread of infection. Quarantine, vaccination, sanitation or anything else that will help should be employed. Nothing within the bounds of reason should be left undone to control the infection. The attending official veterinarian should be satisfied with nothing short of perfect results.

We must take a broad view of the matter. We should not be satisfied with merely stopping little outbreaks of hog cholera here and there and fighting a long drawn-out battle with this disease. The prime object should be to stamp out hog-cholera infection entirely and make hog-raising safe. We should not be satisfied with shipping rules which merely reduce, somewhat, the spread of hog cholera by the shipment of stock hogs. These shipments ought to be controlled in such a manner as to make the shipment of stock hogs a safe proposition, both to the shipper and his neighbors at destination. The toleration of any regulations which do not accomplish this purpose is merely playing with the matter, and doing things by halves. It will bear repeating that the one great object of hog-cholera control work is to make hog-raising safe so that hundreds and thousands of farmers, from poor to moderate in circumstances, may be encouraged to engage in hog production.

ESSENTIALS FREQUENTLY NEGLECTED

Where live stock is a factor on the farm, make every field hog-tight and sheep-tight; have thoroughly good permanent pastures; grow leguminous crops; build a silo; and keep only pure-bred males. These five things are absolutely essential in the economical production of livestock. Of course, this program calls for some labor and expense, but the permanent conditions of prosperity in the sections devoted to live stock production is proof of the good profit derived therefrom.

Queries and Answers

Retained Placenta

a. *Removal of Placenta and Irrigation of Uterus:* I am puzzled by the following quotation from the "Report of the New York State Veterinary College—1913-14," and have not the heart to attempt the removal by hand, nor resort to irrigation. "If however it (by manual removal) is attempted to detach the membrane, instead of the chorionic tufts pulling out from the crypt, the fetal cotyledon tears away from the surrounding portions of the chorion, and remains attached to the uterine cotyledon nothing has been gained."

In the fact of the above I am afraid to resort to manual removal. What would be a suitable procedure in such a case?

REPLY BY J. F. DEVINE: The subject of retained placenta is an important one, receiving at this time quite a bit of attention. Some of the discussions, however, indulged in at some veterinary meetings seem to me a little short of ridiculous in fact they show that many who are discussing this problem have become cattle specialists rather hurriedly and the information they dispense is not based on sound knowledge or experience.

When a placenta is retained it is an indication that there must be more or less unnatural adhesion between the fetal membranes and the internal surface of the uterus. It has been the custom for years by both empiric and trained veterinarians when called to attend these cases to remove all or part of the membranes by manipulation, commonly spoken of as "unbuttoning." The old rugged grade cow with a hardy constitution even under the roughest of handling usually withstood this ordeal, often never missing a feed or decreasing one pound in her milk flow; even some pure breds withstood this crude handling pretty well until the organic changes caused by the Bang organism became so severe as to apparently heighten the susceptibility of infection and absorption in our pure breds.

First let me say that we should NEVER, NEVER USE FORCE to remove a placenta from the uterus of a pure bred or delicate high grade cow. It is true that occasionally we are called to see an animal with a retained placenta where adhesions are very slight, with only a pinching of the membranes at the extreme end of the cornua or slight adhesion of a few of the cotyledons which is soon released by very little manipulation and the animal is thereby relieved practically as normal as though the membranes had been discharged without aid; but where adhesions are more extensive it is my judgment after twenty years of experience, that the only safe and sane way known to our profession today is hot douching of these membranes either with a very mild antiseptic or a physiological salt solution daily (I have abandoned everything but plain warm water or salt solution except where a putrid condition exists), until every shred has been washed away. Some of the membranes should be allowed to hang through the os as this will retard its contraction, and it is well if possible to loosen all membranes before the os contracts so much as to prevent the introduction of the hand. It seems almost superfluous to add that the membranes should not be allowed to hang out of the vagina thereby keeping the tail and the hind parts soiled, but cut off so that they simply hang through the os, and common decency demands that the tail, hindquarters and udder be kept clean so as to avoid contamination of the milk or the internal structure of the udder. We will find after two or three days of douching that the capillaries of the cotyledons and the endrometrium contract and assume more firmness thereby lessening the danger of infection, and the adhesions between the membranes and the cotyledons gradually give way so that by gentle manipulation they can usually be

removed completely with safety in from three to seven days.

With rare exceptions there is no true growing together of the maternal and fetal cotyledons, it is simply a resultant swelling from the inflammatory condition that dovetails them, so to speak, so tightly that the tufts of the chorion are held firmly to the maternal cotyledons. This fits in very nicely with what appears to me to be a logical explanation given by Williams as to the mechanical reason why placentas are retained. He states:

"We habitually hear it said that retained placenta in the cow is liable to be followed by metritis. This is a gross misconception of the facts. In all cases retained placenta is preceded by metritis. In other words, we should regard retained placenta not as a separate affection, but as a complication of metritis. The metritis must originate some time prior to the expulsion of the fetus and have had time to develop prior to calving or abortion, a sufficiently intense inflammation of the uterine cotyledons to incarcerate the tufts of the chorion. It has been erroneously assumed by some writers, that improper care of the cow after parturition permitting her to take cold, or allowing her an improper diet induces retained placenta. We commonly hear it said that general debility of the animal or prolonged labor causes retained placenta. In the very nature of the case, this cannot be. The metritis which leads to the retained placenta may indeed cause great debility or critical illness of the animal, and equally it may cause difficult labor because the metritis may develop and increase in seriousness, subsequent to abortion or parturition because of the retained membranes, is perfectly logical and this increased severity of the disease is too often mistaken for the beginning of it. Retained placenta is the result of an infection which has entered the uterus."

This being so with our present knowledge of surgery and asepsis would not hot douching to soothe, cleanse and loosen these membranes be a reasonable thing to do?

In such cases where the os contracts rather rapidly massaging of the uterus through the bowel gently and patiently is sometimes quite as effective, in fact in some cases it seems more so, in breaking loose any remaining shreds of membrane or other debris that may remain in the uterus, by first introducing the tube in the uterus as far as one can, having an assistant pump with good force and massaging the uterus through the bowel with the other hand and in this manner by repeated filling and emptying one is able to give it a thorough cleansing. Thorough cleansing of a recently gravid uterus cannot be accomplished with a few quarts of lukewarm water, the water should be as hot as one can work with, with bare hands and may require ten to fifteen gallons to be carried by the hose and massaged into every part of the cornua. It is not at all uncommon by this method to wash away pieces of membrane as large as a man's handkerchief. This can be done daily or twice daily until the uterus is absolutely clean so far as is perceptible by the appearance of the fluid returned, without in the least disturbing or irritating the most delicate cow, providing due care is exercised, the finger nails short and the bowel given plenty of time to dilate as the hand is passed forward.

There is just one danger in douching a uterus of this character, that to caution one with veterinary training to guard against seems little short of ludricrous, and that is, if the cervix is so contracted that the tube fills its entire volume leaving no space for the return of the fluid from the uterus as it is pumped in, and one does not stop pumping when the uterus is filled and press out the fluid but rather keeps on pumping it is entirely within reason that one might accomplish what they are apparently bent on, that is rupturing rather than cleansing the uterus. This cleansing is to be continued daily until the uterus has contracted and all discharges cease. It is well to have such animals receive vaginal douching by stable attendants twice weekly for at least a month.

The advantage of this is obvious to all who have had practical experience in cleansing a uterus when the membranes have been retained or one that has the characteristic abortion discharge, since after the uterus appears to be clean If we later examine the vagina we will find more or less of a purulent discharge lying on its floor for several days or weeks

after. This is frequently in evidence in the gutter behind the cow if the vagina treatment is not continued as suggested. Clinical experience leads me to believe that *this thorough cleansing of the genital tract is the important factor that makes possible the control of endrometritis, abortion and sterility with our present knowledge.* Biologics may supplant this method but we of course are discussing the problem as we must meet it today.

The infecting of a healthy uterus, abortion, retention of the membranes, spreading of virus, pathological changes in uteri, tubes and ovaries, and subsequent sterility constitute a cycle that must be attacked either at the ports of infection, let them be either vaginal or per os, a thing that is not always easy to accomplish, or immediately after abortion occurs to correct so far as possible uterine changes and prevent extension of the inflammatory processes.

I appreciate that the question asked by the subscriber does not involve the subject of abortion but to me retained placenta and abortion are almost inseparable. As I see it the Bang virus being assisted more or less by secondary invaders is the principal factor in our breeding problems today, leading to uterine infection, endrometritis, early abortion, possibly followed by chronic endrometritis which later prevents implantation of the embryo and hence sterility, or imperfect implantation with early abortion or normal implantation and an endrometritis, cotyledonitis, placentitis, abortion, or full term of gestation, retained placenta and if neglected possibly metritis, pyrometra, salpingitis, ovaritis, cystic or degenerated ovaries and sterility.

To control contagious abortion and sterility there are five factors involved:

1. Prevention of infection. Where is the master mind that can tell us how to accomplish this?

2. The proper cleansing of the uterus when gestation ends, let it be what period it may. This is the most vulnerable and important point in the cycle to attack to control the virus and mitigate the severity and extension of the infection in the genital tract.

3. Strict isolation which has positive value if properly carried out.

4. Thorough sanitation.

5. Proper treatment of the pathological changes occurring in the generative organs that inhibit conception.

I hope to present my views on these divisions in a paper at the next national veterinary meeting.

b. *Irrigation of Uterus:* This again I am afraid to attempt in the face of the following quotation from same paper: "While the plan of douching the uterus with disinfectant is highly commended by some, it is again highly condemned by others. The uterus may actually rupture, especially when the fluid is forced in with a pump. If we inject fluid, we must accordingly remove it, if it is not promptly expelled." I ask by what means can it be removed if it is not expelled? Some writers state that it is too difficult to pump it out again. Please assist me here again.

The question of douching the uterus in a case of retained placenta is opposed rather vigorously by some veterinarians, arguing that there is great danger of rupturing this organ. I cannot refrain from stating that a veterinarian or anybody that manipulates a uterus, such as we are discussing, with his hand and a soft rubber tube severe enough to rupture it is not fit to be trusted with the care of valuable stock. There are certain uteri that should not be douched and every veterinarian should know this before he attempts this character of work.

First, there is no reason or excuse for douching a uterus immediately after parturition unless it has become in some way seriously infected by manipulation. Time should be given for Nature to do its share so far as it can. I can recall that even empirics were informed on this a quarter of a century ago.

Second, a ruptured uterus obviously should not be douched. There is no excuse for this careless act, but nevertheless it is done. A man who does not carefully cleanse the external genitals and make a careful examination of the uterus before beginning treatment or handling of it will come to grief sooner or later. This is not only so in the case of douching but like careless methods are used by some in cases of dystocia. Let me remind you that there are more uteri ruptured where parturition is obstructed, by the labor efforts of the cow where by the force of the diaphragm and abdominal muscles the fetus is jammed in the bony

cavity and the membranes ruptured allowing the fluid to escape thus exposing the extremities of the fetus directly against the internal surface of the uterus at a time when it is greatly distended and in the throes of labor, than are ruptured by capable veterinarians in handling dystocia.

Even with the fetus in the uterus ruptures can usually be located if proper careful examination is made, since at least 90 per cent of all ruptures are either in the fundus or in the superior part of the gravid horn. This is quite obvious when we consider as we have said that these are the parts that come in contact with the bony cavity and are forced upward and backward by the softer organs.

Naturally there is nothing to interfere with a careful examination after the fetus has been delivered and we are treating the membrane only and this examination should be made before we douche the animal and not after. True, the greater the distention naturally the thinner are the walls, but anyone with obstetrical experience knows that the uterus is rather a strong organ and will stand considerable handling in removing the fetus or in replacing an everted uterus, it is naturally stronger 24 hours after when the walls have contracted and thickened somewhat and for an intelligent operator to rupture such a uterus which has withstood the natural labor forces with a soft rubber hose and water seems beyond reason.

Third, there is still another condition under which we are not justified in douching the uterus and that is when we are called to see an animal that has freshened a week or so before where the membranes have been held and the uterus either has received no attention and the membranes have undergone decomposition, or where the membranes have been forcibly removed thereby leaving a raw surface allowing absorption of the putrid uterine content; in either of these cases we are apt to have a resultant metritis or metroperonitis accompanied with considerable temperature, complete anorexia, suppression of the milk flow, loss of flesh and a haggard look usually terminating in puerperal septicemia and death.

If we examine the uterus we will find the walls almost as putrid as the content. They are lifeless, slimy or friable and decomposing, in such a condition that the weight of one's finger almost penetrates. I could never quite understand why anyone would attempt douching a uterus of this kind with more than enough liquid to aid in syphoning out the putrid content, neither could I understand why they should associate the rupturing of such a uterus or the death of such a cow with douching as a cause. I would like to ask what percentage of such cases live with or without douching.

There is still another phase of the douching question which some lay great stress on if they would permit douching at all, and that is the instruments to use and who should use them.

As to instruments my choice has been for some fifteen years, a pump and tube which is considered by some dangerous; I was, however, somewhat pleased to read in the April, 1917, number of the *Cornell Veterinarian* a translated article of Prof. J. Albrechtsen, in which he states that: "After twenty years' experience that irrigation with a common tube and funnel has in most cases little or no influence, and experience has shown me that mechanical cleansing is of chief importance and that the pump is far preferable to the common funnel and hose."

I am quite willing to let an intelligent owner or herdsman douche certain animals for me, in fact, very glad to have them do it where I am attempting to clear up an outbreak of contagious abortion or where the number to be douched are so many and cover such a period of time that a daily visit would be exorbitant or unreasonable. True, there are owners and herdsmen I would not let attempt it any more than I would some veterinarians in the case of my own herd, but I find that many of the trained owners and herdsmen of today can douche and syphon out very nicely. I do not expect them and neither do I want them to manipulate the uterus through the intestinal wall, neither am I concerned if they leave a small amount of salt solution in the uterus, the several pails of hot douching which is repeatedly ejected as it is by the ordinary uterus has a value far in excess of any imaginary disadvantge of the

small amount of salt solution that may be left in.

I am free to admit that I am not able to draw out every bit of the fluid from the recently gravid cornua when the membranes are still there continuously blocking up the mouth of the syphon; likewise I have been unable to devise a method whereby I could pick up a recently gravid cornua and squeeze its contents out; in fact, I would be quite interested in inspecting the arm and hand of a man who would be able to do this, consequently I do not ask a lay assistant to do what I cannot do myself.

It is true that this can be done in a few days if the uterus contracts rapidly so as to become small enough to handle it conveniently, but any practical man knows that if you fill a uterus of this sort with a hot douche you will excite contraction and straining so that the animal will eject practically all of it in the course of twenty minutes.

I wish to again emphasize the value of massage in these cases as it is of great importance both in breaking down the shreds and toning up the uterus, but when a man argues that this should be done with the purpose of obviating the danger of any salt solution remaining in the uterus, the principal merit of his argument lies in saying something and appearing wise.

Any treatment or method that will not allow me to give my clients value received and at a reasonable expense has no interest for me. When a hypothesis loses sight of the practical side of a question to me it is about valueless.

At the National meeting held at Detroit, in 1916, I cited an instance where a violent outburst of contagious abortion occurred in a herd of pure-bred Holsteins in the northern part of our country; the owner, a lawyer and a very intelligent and reasonable man, had sought the aid of his veterinarian but after he had lost five valuable cows and seven calves he asked me to take charge of the herd.

I described in that paper my method of handling this herd. There were some twenty cows about to freshen, I desired that all of these animals should be douched daily for a long period and then twice weekly for a still longer period. This farm was nearly 20 miles from my office and I am just as certain as I am of anything we do in our practice that irregular and infrequent douching would have failed to check the malady and clear up every uterus as it did, so that every animal was saved and every one with the exception of one, successfully bred that year; consequently I put in the hands of his herdsman a pump and tube with full instructions as to how to use them. I returned to the farm at such times as I thought necessary to give proper instructions and maintain proper supervision. This I could do without making expense to the already burdened owner unreasonable and exorbitant.

I would like to ask any level-headed capable practitioner if this was not a more just procedure than to extort from this owner enormous fees simply because his local veterinarians had in no way given him relief.

If we are to make our charges for our services as much of a burden to the stock owner as the loss of his cattle would be I cannot see how we can claim any just part in aiding our clients, our community or our country. I have stated before and I wish to repeat here that I place a pump and tube in the hands of any owner or herdsman among my clients whom I feel are intelligent and careful men who will do what I tell them and no more; I feel that by so doing I have done a greater service to my community and in no way hurt my practice or the practice of any other ethical unselfish man.

Some may think that I have laid unnecessary emphasis on the necessity of careful manipulation. I have done so purposely, as at times I have been astounded at the roughness with which men with veterinary training handle such cases. I have seen some cases after they have been treated by others where there was a bloody discharge in the feces, violent straining and perhaps anorexia for a day or two. This may be excusable where it is necessary to resort to great pressure on a diseased ovary or in the case of pyometra where dilation of the os in order to flush the uterus is sometimes obstinate and tedious, but there is no excuse for it where one is simply washing out and massaging a recently pregnant uterus.

I can only add in defense of douching

that I have handled hundreds of cases of retained placenta and douched hundreds of uteri with the precautions I have given here, and I never had occasion to feel in a single case that douching was not beneficial rather than harmful. A better method may be devised for removing membranes such as the hydro-method lately described by Shaw, but let that be as it may the necessity of douching an infected uterus will still remain.

Any other method that has for its principle a scheme of disinfection rather than mechanical cleansing is contrary to our present knowledge either from scientific investigation or clinical observations.

c. What quantity of potassium manganate or other disinfectant is recommended to a gallon of water, and what quantity should be injected.

We have recommended salt solution for douching mainly. In putrid cases chlorozone or permanganate have great value. If permanganate is used, from 15 to 30 grains per gallon, if chlorozone, 1 to 4,000, both to be followed by liberal rinsing, so to speak, of the organ with salt solution.

d. *Eversion of Uterus:* With Steffen's method he starts with hypodermic injection of morphin sulphate, four to six grains. Would chloral answer the same purpose per rectum? What quantity of this drug and water? He has a pail of antiseptic solution at hand. Is it warm or cold?

Chloral works fully as well as morphin in some cases, however, all with experience know that an ounce or an ounce and a half of chloral will have no appreciable effect upon some horses even when the animal has been fasted and prepared for an operation. If the case in hand shows this idiosyncrasy chloral should be supplemented with morphin. I have found 25 grains usually sufficient in such cases. In using chloral per rectum an ounce and a half in two quarts of water is quite satisfactory.

As to the antiseptic solution being warm or cold, my experience has been that a very warm solution is usually the most desirable, however, the changing to extreme cold will often check a capillary hemorrhage of the endrometrium and reduce the volume of the organ where difficulty is experienced in replacing it.

e. Should one fail to get cow up on her feet, would it be practicable to raise hind quarters by means of ropes around the hocks and over a beam? By what means can the mass, which is enormous sometimes, be reduced?

It is practical and oftimes very satisfactory to raise the hind quarters by means of ropes around the hocks and over a beam. Some argue that there are cases of everted uterus that cannot be replaced. Where the pelvic cavity is of normal size and the animal is in anything that approaches decent quarters where one can remove their outer clothing and properly clean the organ, a statement of this kind indicates that a man is unskilled, lacks the go to give the service that is expected of him.

One of the first things to do is to thoroughly cleanse the organ and get it on a clean sheet, assuming that the cow is down which is usually the case; then shrink it if desirable by cold or alum water. Before the animal is disturbed or discouraged see that plenty of help is present if possibly obtainable, drafting neighbors or anybody.

When all is ready have an attendant on either side of the cow to twist the ends of the sheet the organ is lying on until it becomes sort of fitted to it like a nurse's cap. Instruct another attendant that he is to stand in front of you in a crouched position raising the central part of the mass which is protected from injury by his hands by the sheet. Loosen the cow from the yoke so as to give her freedom of her head and have someone else, either a boy or whoever it may be, standing near with a short piece of board about three inches wide though one end which has been driven a few well sharpened nails (a stable fork will work if necessary but does not look as well). When everything and everybody is ready the cow is given three or four quick sharp taps on the dorsal region of the spine with the nails, these jabs are not to be brutal or painful but sufficient to surprise and startle her, and 99 and a fraction of cows will jump up instantly if relieved of the weight of the pendulent uterus by man-power, providing, of course, she has no fractures or other injuries that have disabled her.

If you have instructed your assistants to hold the organ very high you will begin to work from the side and bottom, nearest the vagina, with instructions that everyone is to push the organ in with you, the sheet being still on the outside to prevent injury, the nails are to be kept in use, by scratching, so to speak, the lumbar region which will cause the animal to flex her back downward, your movements are to be quick while she assumes the desired position, and if you are an adept you will accomplish in a few minutes what perhaps the whole neighborhood has been trying to accomplish all day. Where the cow is unable to rise, the hock and beam method or a slanting platform with the hind parts raised as when spaying a bitch will assist materially.

f. How can one combat straining in the mare when pain is very severe? Is it practicable to resort to trachelotomy when all "kinks" cannot be straightened out and the cow continues to strain. Steffen's plan is to "pump the cavity full of warm antiseptic solution." Suppose the uterus fails to expel it? What then?

Trachelotomy in cattle occasionally works well, I would not advise it in a mare. Repeated filling and emptying of a uterus by syphoning it out after it has been allowed to remain in a few minutes usually completes the replacement. If the animal continues to strain fill the uterus and walk her up and down a sharp incline, this with a long arm will usually remedy the most obstinate case. This failing, resort to the vaginal clamp.

g. *Postpartum Hemorrhage:* Please assist me in dealing with this formidable foe.

The treatment of postpartum hemorrhage depends upon its severity, if mild, douching with a very hot or very cold solution to which has been added tincture of chlorid of iron, usually checks the hemorrhage. In severer cases hypodermic injections of adrenalin chlorid should be administered without delay; if this is not available use ergot. If the wounded vessel can be located use hemostats or compress.

Atropin hypodermically is an effective agent for the suppression of internal hemorrhage. Give it in full dosage, one-half grain repeated in an hour if necessary for a 1,200-pound animal.

PIG-EATING SOWS

I would like to know the probable cause of sows eating their pigs. I have a client who has a lot of pure-bred Durocs, and has had good success with them until recently. The old sows have taken to eating their pigs.—J. B. B., Alabama.

REPLY:—There is a sort of tradition that pig-eating is due to an unbalanced ration, and many hog raisers believe that by feeding meat meal, bloodmeal, tankage, alfalfa, or other feeds with a large protein content, they can keep the sows from eating their pigs. The animals should be watched at farrowing time and the placenta removed immediately not allowing them to eat it, and dead pigs should be disposed of promptly of course. The sows should have proteid feed for at least four weeks before farrowing. Pig-eating, like feather-pulling in chickens, and chicken-eating in hogs, is to an extent, a habit that is much easier to prevent than to break, but the line of procedure given above will be successful in the majority of cases.

SYMPTOMS INDICATE FORAGE POISONING

I was called early one morning in October, to see a two-year-old gelding and found it with a severe chill, temperature 92° F., breathing quick and heavy, ears drooping, eyes glairy, very quiet and probably unconscious. The owner informed me that the animal had lain out in a hard rain the night before, and that previous to that it had been fed on good corn and fodder.

Late in the evening of the same day, the owner of this horse phoned me to come back at once, as the horse was worse. I found him up and pawing, with his head hanging almost to the ground, temperature 103°, pulse imperceptible, breathing about normal. He fell dead in about ten minutes. What is the diagnosis?—B. E. P., Ky.

REPLY:—From the meager data given, one is inclined to think first of forage poisoning. The client's statement that the animal had fed on good corn and fodder does not prevent this suspicion, since at times the greatest care is needed to detect any mold or other suspicious factor about the feed of ani-

mals that are so affected, and in the large number of cases of forage poisoning recently reported by the Kentucky Agricultural Experiment Station, the clean, bright oat hay was incriminated as the causative factor. The oat hay apparently contained organisms similar to the bacillus botulinus of forage poisoning.

It seems that an error must have been made in taking this animal's temperature at the time of the doctor's first call, since it is not likely that he would live until his temperature went down to 92° or at least that he would live a day after it. The error might be due to a relaxation of the sphincter ani which permitted the rectum to cool to a point considerably below body temperature.

RETEST FOR BOVINE TUBERCULOSIS

(Continued from page 176)

1. The subcutaneous test is considered superior to all tuberculin tests and is used on cattle above six months of age.

2. When applying a retest to questionable reactors, or when the reliability of the tester is involved, the left eye is sensitized with a 4 per cent solution of ophthalmic tuberculin three days after the original test.

3. The seventh day following the original test the same eye is dropped with an 8 per cent solution of ophthalmic tuberculin and the animal is injected subcutaneously with a specially prepared tuberculin which contains 1.2 cc. crude tuberculin.

Drs. Marshall and Turner give results secured in applying the test as above outlined in the case of several herds, and while they are all interesting in emphasizing the value and reliability of the retest as compared with the original test I will give a summary in detail of report on one herd only.

Total number of animals in herd	125
Original Subcutaneous Test.	
Positive	65
Suspicious	7
Negative	53
Total	125
Retest Subcutaneous (7 days later)	
Positive	105
Suspicious	0
Negative	20
Total	125
Ophthalmic Test (At Time of Retest)	
Positive	81
Suspicious	4
Negative	40
Total	125

Postmorten Results.

Lesions	97
No visible lesions	8
Total	105

To show the value of early retesting, we will compare the results obtained from the various tests.

Of the 125 animals in this herd, 65 were positive to the original subcutaneous test, all of which were positive to the retest, but only 53 of these reacted to the ophthalmic test.

On postmortem all showed lesions except one. Of the remaining 60 animals in this herd, which were negative to the original subcutaneous test, 40 reacted to the retest and only 28 to the ophthalmic test.

The 40 that reacted were killed and on postmortem 38 showed lesions.

Doctor Torrance, Veterinary Director General of Canada, in commenting on the work of Drs. Marshall and Turner, expresses himself as follows:

We have been basing our tuberculosis work upon the fact that retests are necessary and should not be made too recently after the original test. I am quite convinced and my predecessor was convinced of the fact, that the first test of an animal is far more reliable than the second one but I would like to congratulate the writer of the paper upon retesting upon bringing before this association a new fact, the fact that a retest made only seven days after the original test may be found more accurate than the original test. We have been supposing that it was necessary to allow a considerable lapse of time between the two. Our official retests are not made oftener than three months after the original test and it is often a great inconvenience to live stock men who wish to export cattle, to have to wait all that time before a retest can be made. If further experience in retests in seven days proves that it is a reliable method, I think a very great step will be taken in advance of our previous custom. It will remove a great source of annoyance and delay to the shipper and it will aid very greatly in the speedy elimination of tuberculosis.

PROBLEMS OF FARM EDITORS

"3025—Wire Cut—I have a horse that got wire cut in the fall about October 1 and it is not completely healed. It healed about half way and no more. I have given her the best of treatments and used everything that I could think of and that my neighbors would recommend. It will not heal any farther and has been about the same for two and a half months. What would you recommend for it? There was an artery cut at the time the wire cut occurred. The sore that is open now looks ugly and it is decaying or something.—Washington Subscriber."—*American Breeder.*

Anti-White Scours Serum

Lederle

For the

Prevention and Treatment of White Scours in Sucklings

Investigations both in the United States and in Europe have conclusively established that with the aid of a *potent* ANTI-WHITE SCOURS SERUM it is possible to reduce the losses from this infection to a minimum or even to entirely eliminate them. It has been shown that losses, even in the most severe infections, which prior to the use of serum amounted to 75 to 100 per cent, were eliminated. In herds where the disease is prevalent, it is essential to administer to each calf as soon as possible after birth a protective dose of the serum.

Repeated observations have established that different strains of the colon organism as well as organisms of the para-colon group are responsible for this disease.

LEDERLE'S ANTI-WHITE SCOURS SERUM is obtained from horses which have been at first treated with suspensions of dead organisms containing various strains of B. coli, paracoli, metacoli, abortus, aerogenes and enteritidis. After the preparatory treatment, live cultures are injected intravenously into the horses, beginning with small amounts until the highest tolerance is reached. The serum is subjected to the agglutination test against the various strains used and it is required that the serum agglutinate each respective strain in a dilution of at least 1 to 1,500.

Preventive doses of 10 c. c. @ $0.60 per dose.
Curative doses of 30 c. c. @ $1.50 per dose.

Orders or inquiries for discounts should be addressed to our General Selling Agents, Messrs. Schieffelin & Company, 170 Williams Street, New York, N. Y.

Lederle Antitoxin Laboratories

New York

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1133 Marshall Field Annex Building	Firestone Building 20th St. and Grand Ave.	1120 Maison Blanche Building	534 Granite Building 4th and Market St.

Abortion Vaccine

Lederle

For the

Prevention of Contagious Abortion in Cattle

Investigations by the English Commission and also by many other investigators have established that in order to produce immunity it is essential to administer large doses of vaccine. This fact has been given consideration in the preparation of the LEDERLE ABORTION VACCINE. A complete treatment consists of 3 injections each containing 300 *billion* killed abortion bacilli in a 10 c. c. suspension.

Various strains of B. Abortus isolated from many cases of contagious abortion in cattle, are cultivated on suitable culture media, suspended in physiological salt solution and rendered sterile, after which 0.25% trikresol is added.

PACKAGES: LEDERLE'S ABORTION VACCINE is supplied in packages containing 3 vials, comprising a complete immunizing treatment for one animal.

Administered subcutaneously with an ordinary hypodermic syringe.

Price, $2.00 Per Package

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Blackleg Filtrate—

Lederle

Those who have had actual experience with the control of Blackleg have long realized the necessity of a product which would *safely* and *effectively* immunize animals against the disease.

While it must be recognized that Blackleg Vaccine prepared in the usual pellet and powder form has given splendid results, however its shortcomings on account of its irregular immunizing action and the direct losses resulting from the vaccinations have caused many complaints against the reliability of the method.

Recognizing the shortcomings of the vaccine, investigators have been at work to develop a safer and more uniform product which would avoid losses from vaccination and at the same time confer to the animals an effective protection against Blackleg.

The development of BLACKLEG FILTRATE—LEDERLE has proven to fulfill the requirements of an effective immunizing product.

When we announced the successful accomplishment of LEDERLE'S Germ Free Blackleg Filtrate and offered it to the Veterinary profession, painstaking and unceasing research work had established with us the full conviction of the great advantages this product possessed.

The classical studies of Bail and others with aggressins of Blackleg and Foth's work with precipitates and filtrates of Blackleg cultures further substantiated the claims made for BLACKLEG FILTRATE—LEDERLE.

Since the introduction of this product, over five hundred thousand vaccinations with BLACKLEG FILTRATE—LEDERLE have proven its immunizing value, since even when used under the most adverse conditions the results have been highly satisfactory. Losses from failure of protection have occurred only in a few instances, and mostly in the first ten days following the vaccination, which represents the time before the immunity has been fully developed in the animal.

The extensive available data shows that only one-fiftieth of one percent of the animals vaccinated with the Filtrate, died of Blackleg, which

must be accepted as a remarkable record if it is considered that the vaccination has been frequently undertaken only after actual losses from Blackleg have occurred among the animals.

Veterinarians should not hesitate to use BLACKLEG FILTRATE—LEDERLE. It is not in the experimental stage. Its effectiveness has been conclusively proven.

It is strictly a laboratory product and therefore can be accurately controlled during the process of manufacture. This must be recognized as a great asset since other products used for vaccination against Blackleg cannot be subjected to such control.

The outstanding features and advantages of BLACKLEG FILTRATE—LEDERLE are:

1. It is an effective immunizing agent against Blackleg.

2. It confers an active immunity, which protects cattle against the disease for at least one year. According to a recent ruling by the United States Bureau of Animal Industry there is not sufficient evidence available to prove that any blackleg product will produce *permanent* immunity.

3. Since it does not contain the blackleg germ in any form, it cannot produce the disease; therefore, losses incidental to vaccination with the powder or pellet form are entirely avoided.

4. It is prepared in a concentrated form, is suitably preserved and will retain its uniform potency for an almost indefinite period of time.

5. It is tested by animal inocculation for safety and potency and is subjected to the various tests for sterility, after the filtration and filling process, in order to guard against any possible contamination.

BLACKLEG FILTRATE—LEDERLE is supplied in the special Lederle vial in three different size packages, as follows:

Package containing 10 c.c (10 doses)	$ 2.00
Package containing 50 c.c (50 doses)	8.00
Package containing 100 c.c (100 doses)	15.00

Orders or inquiries for discounts should be addressed to our General Selling Agents, Messrs, Schieffelin & Company, 170 William Street, New York, or to one of the following branches:

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Lederle Antitoxin Laboratories

New York

Matters of Current Interest

Brenner Makes a Northern Trip by Rail

Fort Worth, Texas, March 15th. Am I glad to get back to the Reo.? Well, I should guess yes.

I felt real good when I saw the old boat today and I hope, after going over it for a few days, to be able to resume my journey Philadelphiaward.

As stated in my letter which appeared in

Capt. and Mrs. Barber, Lt. and Mrs. Wall and Capt. Pryor at Camp Pike, Remount Station.

the February issue of the JOURNAL, I left my car in Ft. Worth two months ago. I went by rail from Ft. Worth to Ames, Iowa, where I attended the Iowa State meeting and visited the school. Visits to the Chicago, McKillip, Terre Haute, Indiana, Grand Rapids, Lansing, Ohio State and Cincinnati Veterinary Colleges followed in order. Enroute I stopped and visited the veterinarians at Camp Custer, Battle Creek, Michigan, Camp Sherman, Chillicothe, Ohio, Camp Taylor, Louisville, Kentucky.

From Cincinnati I went to Kansas City where I attended the Missouri Valley meeting, and visited the Kansas City Veterinary College, then I visited the St. Joseph Veterinary college, next to St. Louis for a day and then to Terre Haute again where I attended the Ohio Valley meeting. From Terre Haute I dropped down to Louisville for a second visit to Camp Taylor. Then I went to Ft. Oglethorpe, Georgia and saw the men at Camp Greenleaf. From there I went to Memphis, Tenn., then to Camp Pike at Little Rock, Arkansas, and "then here."

The several association meetings at which I was present were not largely attended but the quality, enthusiasm and interest were there. Freshman classes at all of the schools are very light in number.

The more I get around to the camps the better I like it. The boys seem to appreciate my coming, and I know I enjoy seeing them. Most of them I have already met, in their offices throughout the country from Maine to California and from Minnesota to Mississippi, at veterinary meetings, and, of course, many of the younger ones I became acquainted with during their student days.

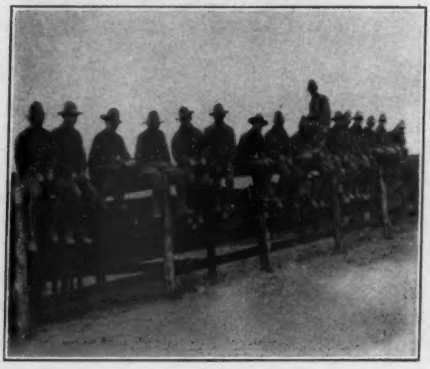
I will particularly mention Camp Pike. I was entertained wonderfully there. Both Major Edwards and Captain Barber were extremely courteous to me. At their request I addressed their men. Major Edwards made a suggestion to me that I think is a fine one.

Capt. Grutzman, Post Veterinarian at Ft. Oglethorpe, Ga., and Lt. Waters, at entrance of $25,000 veterinary hospital at the fort.

Dr. R. M. Gow, state veterinarian of Arkansas, at Little Rock, Ark.

He wants us to urge through the JOURNAL that every army veterinarian, who is not already a member, join the A. V. M. A. The A. V. M. A. is making no particular effort to reach these young veterinarians who are going into army service. They should belong to the association. There can be no question about that. Our Journal reaches more than ninety-five per cent of them, and it is simply up to us to do all that we can to get them to put in their applications for membership in the A. V. M. A. before they leave our shores. I am urging this upon them individually all the time.

Major Edwards is Post Veterinarian at Camp Pike. He has ten men in his command, all



A group of soldiers belonging to the veterinary corps, (enlisted personnel), at Camp Pike, Remount Depot.

inspired by the "get together" spirit, and are accomplishing most satisfatcory work.

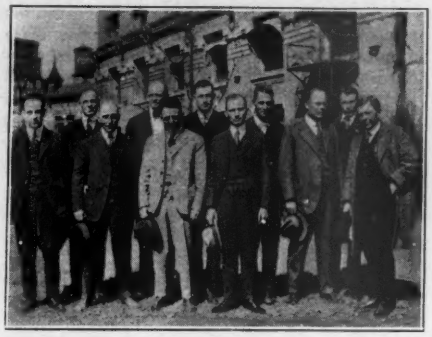
Captain Barber, in charge of the remount station at Camp Pike has been with the army twelve years. He has a fine, efficient corps of young veterinarians in his command. Each is assigned to a special duty, and the systematic, energetic manner in which all of the boys go to their several duties is producing results of the right kind.

At Little Rock I met Dr. R. M. Gow the state veterinarian. He claims the distinction of being the youngest state veterinarian in the United States. He is secretary of the Southern Cattlemen's Association and is doing much to promote live-stock development in his state.

I believe that Kansas City is the largest

Dr. Simmons, of the White Cross Serum Co., East St. Louis; Mr. Julius Mork, of Sharp & Smith, Chicago; and Mr. J. P. Thiry, of the Eucamphine Co., Chicago, standing in front of the Terre Haute Veterinary College, Terre Haute, Ind.

veterinary center in America. Am I correct? If that is true then Ft. Worth must run Kansas City a close second for the honor. Why, I have seen as many veterinarians around the lobby of the Westbrook hotel in the last two nights as I ordinarily see at a good sized state meeting. There are the tick eradication men, the hog cholera control



Dr. Graefke, inspector in charge of tick eradication division, and Dr. Frank Jones, inspector in charge of hog cholera, with tick eradication veterinarians at Ft. Worth, Texas.

worth of the A. V. M. A. to them and every man present signified his intention of becoming a member of the association.

The local branch of the tick eradication division was established twelve years ago. Some thirty veterinarians work out of this office and the office at Houston. Practically the entire state of Texas was under quarantine when these men began their work in 1906. Since that time 48,967 square miles of territory has been released. This area is larger than that of the entire state of Mississippi, the first state to banish the tick. Next year will see the biggest drive ever attempted against the tick. Sixty-five counties have already planned to assist the Bureau men in this gigantic task. The state of Texas is assisting in this movement and on every hand the men are receiving earnest and ready co-operation from everyone interested or involved.

It is gratifying to note that the quarantine-freed sections are rapidly filling with good dairy cattle. For example, Dallas county which was freed of the tick some time ago, now claims hundreds of pure-bred dairy cows. The ultimate result of this work doubtless means that Texas is going to be one of the greatest dairy cattle states in the Union. This, together with its being a great beef cattle state, makes it a most promising field for the practicing veterinarian.

men, the meat inspection men, the local practitioners of whom there are a goodly number, the boys at the Remount Depot, those at Camp Bowie, those stationed here in the quartermaster's division and several engaged in commercial lines.

I had the pleasure of meeting the tick eradication men in a group Saturday. Dr. Harry Grafke is in charge. These men had a little session and in conjunction with Dr. Frank Jones, head of the hog cholera control division, formulated plans for the organization of a Texas B. A. I. veterinary association. Every B. A. I. man in Texas will be asked to join this club. I talked to the boys about the value and

Major Edwards and the veterinarians under his command at Camp Pike, Arkansas.

Dr. G. A. Holkenbrink, of the St. Joseph Veterinary College, and one of his recent patients.

Friends of Dr. Leon Cloud, of Fort Worth, Texas, will regret to learn of his recent double misfortune. Dr. Cloud suffered a serious attack of diphtheria and Mrs. Cloud was seriously burned in an accident.

CONGRESSIONAL INVESTIGATION ON HORSE-BUYING

Washington, D. C., March 25.—While the injunction of secrecy has not been taken from the testimony offered before the house committee on military affairs in connection with the pending military legislation, it is known that Lt. Col. M. C. Bristol expressed to the committee a need for more experienced officers and veterinarians in the army.

"I think," he said, "that if we had enough experienced officers and veterinarians, we could go through the country and pick up practically all the horses we needed, if we did not want them in a hurry, but when we have to get a certain number of horses in a certain time, it is practically impossible to do that."

Representative A. C. Shallenberger, of Nebraska, who had expressed the opinion that, from his experience, the average horse buyer knows a horse as well as the government buyers, had been questioning Lieut. Col. R. H. Williams.

"We have testimony here," he said, "that there are only fifty men in the country that the war department considers as having the ability to do this work."

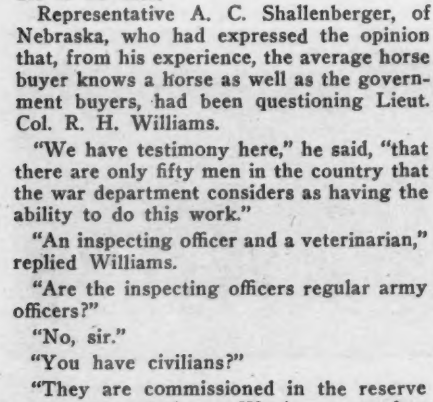
"An inspecting officer and a veterinarian," replied Williams.

"Are the inspecting officers regular army officers?"

"No, sir."

"You have civilians?"

"They are commissioned in the reserve corps, most of them. We have very few regular army officers available for that purpose."



A cavalry remount at Camp Stotsenberg, Philippine Islands. Major John H. Gould at horse's head.

Testimony as to the number of animals now in the service was that there were about 340,000, including mules, and according to Col. Bristol, 155,000 more would be needed for the organization of forty-five divisions, including cavalry, artillery and engineers.

"How long," asked Representative Garrett, of Texas, "would it take the average intelligent farmer boy or man between the ages of 21 and 31 years, now in the service, to learn the specifications so that he would be able to buy horses suitable for the army?"

"A very small percentage," replied Lieut. Col. Bristol, "are ever successful as horse buyers for the army."

"Why?"

"Some men cannot become horsemen. We often find men who have been accustomed to animals all of their life and who are good riders and good trainers and good handlers of animals, who cannot buy animals. I have seen men try to buy horses, and reject some, and the contractor within a few minutes bring the rejects back, and the buyer does not recognize the horses he has seen. A case was brought up the other day of a civilian who is well known in the country as a buyer in the West, and it is said that they could not possibly bring a horse back after he had once seen it without his recognizing it. He would say: 'I told you the other day I did not care about that animal,' and he will pass it along. He is an exception."

"Why should a man be expected in the army to recognize a bay horse that was different from some other bay horse that he had brought before him a few hours before unless there was some specific mark on the horse?"

"I suppose no man can recognize every one, but some men will recognize a great many more than others."

"You require the army horse which is used in the cavalry to be so many inches high, approximately, and so many years old, and so many years young. They are to be without spavins or splints, or anything of that sort, is that true?"

"Yes, sir."

"In other words, he has to have clean joints, and he has to be a well-rounded horse?"

"Yes, sir."

"Does not the average farmer boy know that kind of a horse the minute he lays his eyes on him?"

"No, sir; not to my mind, anyway."

"What is there about it that a man who is born and raised among horses and who

can tell how old a horse is by looking into his mouth, until he is ten years old—what is there to prevent him from going out and selecting a horse when you hand him the specifications and tell him not to get any other kind of a horse than that described in the specifications? Why can he not do that?"

"In the first place, we cannot find the specification horse in the country; that is, the actual specification horse, and so we have to accept those that come nearest to the specifications. We do not want a buyer buying those that are too far away from the specifications. There are certain well-known points of a horse that we object to, and experience has shown that we should get away from them. Those things the average farmer does not understand. After being in the service for awhile, perhaps, he will know more about it. For instance, we object to a short back, and while the animals may be perfectly clean and have no spavins or splints, or anything of that kind, no defects, yet that horse is unsuitable for army purposes."

"Have you ever considered the question of having an officers' training camp to train men in the selection and purchase of horses?"

"To a certain extent we did that at Atlanta this season. At each one of our purchasing zones we ordered certain reserve officers who were supposed horsemen, and also experienced cavalry officers, to go to this place and instruct these officers in the art of buying horses. I went to Front Royal and there were several experienced civilians who had been commissioned in the reserve corps for that purpose. Very few of those officers are now buying horses."

"Do you not think the government would make a considerable saving by having a training school of that kind, and putting those men out over the country to gather up the horses you want?"

"That could be done, provided we could get enough experienced officers for that purpose. We would have to have a very large number to cover the country the way the contractors have the country covered now by their buyers."

"How many?"

"To get them all together I should say it would require 5,000 or 6,000 officers."

"Could not the men who do the buying for the contractors render the same service for the United States government and render it cheaper to the government?"

"I do not think so. I think it would be a great mistake to turn those men loose as government buyers."

"Why? We turn army officers loose to buy other things; why not horses?"

"It took us about twelve months to decide on these fifty men we have in this work. It took us that long to decide that these men were capable of doing it and that was because of the high standard of the specifications, and the knowledge of horses necessary, and I think it would be a great pity to turn loose a large number of those men or even any of those men who are now buying for the dealers, and to commission them."

"I do not mean to commission those men who are buying for the dealers particularly, but I mean men of their capacity, men who can judge horses."

"I do not think the government would get anywhere near as good a class of horses."

Representative D. R. Anthony, of Kansas, took up the questioning at this point.

"Why," he asked, "could you not require local posts or local organizations to purchase their own horses? There are men with the regimental organizations who are responsible enough to do that work."

Showing sole of horse's foot almost eaten away by canker. This is one of the troubles the veterinary corps frequently encounters at remount stations in the Philippines.

"There are a great many in places where they cannot get those animals. When you have to be sure of getting 250,000 in ten weeks, we could not rely on such a plan."

"You have a quartermaster's organization at all these posts," rejoined Representative Anthony. "Certainly those quartermaster officers are capable of buying horses, and if they are not, there are men there who know how to buy horses, and with that organization it seems to me that it would be possible to buy horses through the local representatives of your department, especially at Camp Funston or Fort Riley, which are in the center of horse-growing activities. There must be plenty of men there with a good knowledge of purchasing horses who could purchase them if they had the authority. Is there any one there with authority to purchase horses?"

"No."

"Would it not be proper to authorize those men to buy for the government?"

"No, I think it would still be a pity, because you would still be up against the proposition of not knowing how you were to get your horses, and how many you were going to have. Under that plan it would be perfectly indefinite."

"Say the government wanted 1,000 animals near Fort Riley. It would cost a few dollars to advertise in the newspapers, and to have a representative of the government there to inspect the horses when they were brought in. Have you ever tried that method?"

"Time after time."

"With any success?"

"Practically none."

"I am a stock raiser myself," continued Mr. Anthony. "I have horses and mules I would like to sell to the government if I could get in touch with the government purchasing agents, but the only people I can reach are the horse buyers that come through the country and we are afraid to sell to them because we fear that we will not get the value of the animals. If there was a representative of your department, we would be only too glad to sell them."

If you will furnish a carload lot and notify the purchasing officer, he will send an inspector there."

"It is impossible for a farmer to do that."

"Can the government afford to do the other thing?" retorted Lieut. Col. Bristol.

"Unquestionably, in my opinion, it can."

"I do not agree with you on that."

The estimates presented to the committee include $1,692,000 for horses for officers entitled to public mounts with infantry, for forty-five divisions, 456 to a division, making 20,520, and an allowance of 50 per cent ing 20,520, and an allowance of 50% for wastage. The horses are estimated at $165 each.

For cavalry for twenty-four regiments at 1,476 horses each are required 35,424, to which is added another 50 per cent allowance for wastage, making in all at $165, $18,078,980.

For fifteen divisions, there are required for each 3,059 light artillery horses at $190 and 962 heavy draft artillery horses at $230, a total, with 50 per cent allowance for wastage, of $18,075,480.

For the signal corps forty-five divisions each require 156 riding horses at $165 and eighteen draft horses at $190, which, with the 50 per cent wastage allowance, totals $656,100.

The engineers will require 698 riding horses at $165 and 2,790 draft horses at $190, a total of $645,270.

The military academy needs forty cavalry horses at $165 and twenty-eight artillery horses at $190, a total of $11,920.

Service schools add another $10,395.

Mounted infantry are estimated at $1,074,955; the hospital corps at $286,260; train headquarters and military police, $1,069,200, and ammunition trains, $1,673,745.

The above will be of interest to the members of the profession who have been stung by the June bug and infected with the bacillus golitis. Major John H. Gould had a bad case of this infection while stationed at Camp Stotsenberg, P. I., and the above was chief attendant to his Royal Highness. Although an emergency purchase of trousers was made, they proved highly unpopular and were used only on state oc-

MISSOURI VETERINARIANS HOLD A GOOD MEETING AT KANSAS CITY

The twenty-fourth semi-annual meeting of the Missouri Valley Veterinary Association was held in the auditorium of the Kansas City Veterinary College, February 19 to 21.

The attendance, owing probably to the lack of publicity given the meeting, was rather below the average, but the program was good and the interest better.

Among the papers of more than usual general interest was one by Dr. H. R. Thompson, of the Western Weighing and Inspection Bureau of Kansas City, on "Animal Losses During Transportation." Doctor Thompson gave a detailed account of the number of dead animals arriving in the Kansas City stock yards during the past six months, and pointed out that the number is large, and of great economic importance and that with better methods of handling the animals the loss would be largely preventable. It is Doctor Thompson's belief that the shippers, by overcrowding the cars, by failure to bed the animals, by shipping animals in no condition to be shipped, and, most of all, by neglecting to protect the animals from cold during severe weather, are responsible for the main part of this loss, and that cleaner cars and greater dispatch on the part of railroad companies will further reduce the loss.

Another paper that attracted especial attention was one by Dr. T. P. Haslam, of the Purity Serum Company, Sioux City, Iowa, on "Testing Blackleg Products for Potency."

The paper by Dr. G. F. Jungerman, of Hiawatha, Kansas, on "Cornstalk Disease and Its Relation to Hemorrhagic Septicemia," brought forth more discussion than anything else during the meeting, excepting a discussion by Dr. H. Jensen, of the Jensen-Salsbery Laboratories, of Kansas City, on the subject of "County Agents." At the close of the discussion the following resolutions were adopted by the association:

Whereas, Public necessity demands a high standard of qualifications in the learned professions, viz., agriculture, the ministry, law, veterinary medicine, human medicine, dentistry, etc., and,

Whereas, It is impossible, as a general rule and practice, for any set of men to become proficient in more than one of these learned professions, and,

Whereas, The County Agent, unless he be at least a graduate veterinarian, cannot efficiently and intelligently engage in the practice, teaching, or demonstration of any branch of veterinary science, and,

Whereas, The attempt on the part of County

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Agents, who are not graduate veterinarians, to so engage in the practice, teaching or demonstration of any branch of veterinary science, in an advisory or regulatory way, is in violation of the principle of a high standard of qualifications in the learned professions, and,

Whereas, The violation of this principle opens the way and actually leads to a lowering of the standard in veterinary science, incompetent veterinary service to live-stock producers, promotes empiricism, and tends to supplant those properly trained in veterinary science, and,

Whereas, The live-stock industry of America and the people of this nation demand the most competent veterinary service available, and,

Whereas, The lowering of the professional standard will, in the end, prove disastrous to the live-stock industry, and

Whereas, The duties of the County Agent pertain strictly to agriculture and horticulture, which require all of his ability and energy, without such agent engaging in veterinary activities, and,

Whereas, The veterinarians, members of the Missouri Valley Veterinary Association, do heartily approve the County-Agent plan, provided these agents do not violate the essential principles governing and regulating the learned professions by engaging in veterinary work, and,

Whereas, The members of this association, realizing their immense responsibility to their country in this time of national peril, do hereby pledge all their skill and energy and their lives to its service and sanction and endorse a higher educational standard for the veterinary profession, therefore, be it

Resolved, That the Missouri Valley Veterinary Association, one of the largest bodies of practicing veterinarians in the world, does hereby sincerely and earnestly request the Hon. David F. Houston, United States Secretary of Agriculture, to issue a national order prohibiting County Agents engaging in any veterinary capacity whatever, either advisory or regulatory, and to refer all veterinary problems to competent graduate veterinarians, be it

Resolved, That a copy of these regulations be made a part of the minutes of this association and a copy forwarded by the secretary to the Hon. David F. Houston.

A number of other excellent papers, which will be published in the Journal from time to time, were presented.

A petition to have Dr. G. F. Wuellner, of Alton, Mo., exempted from the draft has been presented to the Alton exemption board. The petition, signed by many farmers and owners of horses, cites that Dr. Wuellner is the only available veterinarian in the vicinity of Alton, and that his services are indispensable.

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FOR THE

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IN

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Carefully conducted investigations, both in the laboratories and on Iowa farms by Dr. Chas. Murray, Veterinary Research Specialist of the Veterinary Division of the Iowa State College, have conclusively established the fact that through the use of a reliable Hemorrhagic Septicemia Vaccine it is possible to reduce the losses from this dreaded disease to almost a minimum. In herds where the disease is prevalent, it is best to treat the calves shortly after birth. By this method of treatment in herds, where the losses ran from 50 to almost 100 per cent. before the vaccine was used, the losses have been reduced very materially and in many instances the disease has been eliminated.

Hemorrhagic Septicemia in sheep has been very prevalent during the past year in Colorado, Nebraska, Iowa and other mid-west states. Wherever the vaccine was used the losses were immediately stopped. This was especially true in Colorado, where a Veterinarian from the State College conducted the field tests and administered the vaccine.

Hemorrhagic Septicemia in swine prevails in many sections. In this connection the use of the special vaccine has been helpful and in most instances stopped the outbreaks.

We recommend the use of a liberal dosage, thus 4 c. c. per animal. The price is 15 cents per dose.

Send for booklet, "Hemorrhagic Septicemia and Its Prevention."

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It is a natural aggressin made from the juices of the infected parts of calves which have died from Blackleg within forty-eight hours after they have been inoculated with a pure culture blackleg virus. The calves must show typical and well defined lesions of blackleg, or else they cannot be used. The tissues from the infected parts are subjected to hydraulic pressure and the juices are clarified and then filtered. The filtered juices are tested for sterility by the various tests prescribed by the Bureau of Animal Industry, U. S. Department of Agriculture, and for purity and potency on animals. Every dose of Germ Free Blackleg Vaccine is thoroughly standardized.

The cheaper liquid vaccines and filtrate products are not made from calves but are grown artificially upon media, thus in their production it is impossible to ascertain whether or not the blackleg virus is present in a strongly virulent form. This fact no doubt very largely accounts for their short time immunity under field conditions as compared to the lasting immunity always obtained when Germ Free Blackleg Vaccine is used.

GERM FREE BLACKLEG VACCINE (the natural aggressin product) has been used in the most severe field tests for more than three years, in localities where all other blackleg vaccines used have failed to immunize the cattle, and to date we have never had a report of a healthy animal treated with Germ Free Blackleg Vaccine dying from Blackleg.

We stand ready to furnish the names and addresses of all the early users and let you get the facts yourself. The public is entitled to the truth.

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3. Being a Germ Free Product, it is absolutely free from blackleg germs in any form. It cannot produce Blackleg, thus no chance for losses following vaccination such as oftentimes happen where the powder or pellet forms are used.

What Germ Free Backleg Vaccine Users Say About This Product:

Clayton, N. M., Jan. 28, 1918.

Gentlemen: I have used over 40,000 doses of the Vaccine and to date have had 100 per cent results. It is the only Vaccine I have ever used where I can treat cattle, go to bed and have no worry over the outcome. Have used it in the worst infected parts of New Mexico. In my judgment it is the only real Vaccine on the market.

DR. E. A. JENNINGS,
Deputy State Veterinarian.

Harris, Mo., Dec. 18, 1917.

Gentlemen: I have used your Vaccine with excellent results. Have never lost an animal with Blackleg after being vaccinated with this product. In my judgment if every cattle breeder would use it as directed the dreaded disease of Blackleg would soon be a thing of the past.

DR. G. PARMENTER,
Deputy State Veterinarian.

Mt. Sterling, Ill., Dec. 30, 1917.

Gentlemen: I have had the best of results with your Germ Free Blackleg Vaccine and have never lost a calf where it was used. On every farm where I have used it they had to lose calves before they would use it. I cannot recommend it too highly.

DR. E. J. EILER,
Asst. State Veterinarian.

Cherokee, Ia., Dec. 28, 1917.

Gentlemen: I have used your Vaccine continuously in my practice during the last year and the results have in all cases been entirely satisfactory. It is the only product I would use on valuable cattle.

DR. W. E. SIMONSEN,
Denver, Col., Jan. 27, 1918.

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Canine Distemper Vaccine, for the treatment of distemper occasioned by B. Bronchisepticus (bronchicanis), streptococcus, staphylococcus and B. Coli.

Calf Scour Vaccine, for the prevention and treatment of white scour or pneumonia in calves due to B. coli, B. paracoli and E. enteritidis.

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ANNUAL MEETING OF ALABAMA VETERINARY MEDICAL ASSOCIATION

The Alabama Veterinary Medical Association held its eleventh annual meeting at Auburn, Alabama, March 1 and 2, 1918.

The first paper was read by Dr. H. C. Wilson, federal veterinarian in charge of hog cholera work in Alabama. He discussed the use of serum and virus and emphasized the principal points that should be observed by veterinarians who administer them; also the care and handling of the hogs. This brought forth much discussion on the subject of immunity and the amount of serum and virus to use. It seemed to be the consensus of opinion that larger doses of serum and virus should be given in order to insure absolute immunity.

A. R. Gissendanner, senior veterinary student, read a paper on "Shoeing Draft Horses in the South." J. R. Sullivan, another senior, read a paper on "Shoeing the Light Horse in the South." These papers brought out a general discussion of the methods that were in common use and their defects. The great importance of having better educated farriers and veterinarians who have practical knowledge of horseshoeing, both in the army and in commercial life, was emphasized. J. H. Fussell, another senior, read a paper on "Removing One-half or One-Quarter of the Cow's Udder." He reviewed the indications, precautions and successive steps in the operation.

The next subject was a live one: "Why Should All Stock Cars, Stock Yards, and Pens be Regularly and Effectively Disinfected under Official Supervision," by Dr. C. W. Ferguson. The results of the handling of a great many army horses and the movement of cattle, hogs, sheep, and other animals in infected cars, yards, etc., shows the absolute necessity for some supervision. The army veterinarians present discussed the question from their standpoint and all seemed to agree that thorough supervision was an absolute and positive necessity as a means of preventing the infection of horses and mules at the time of transportation.

"The Value of Studying Poisonous Plants" was discussed by Dr. M. W. Williams. Many veterinarians expressed the opinion that as a rule they had not received sufficient instruction along that line while in college, they were not informed as to how to recognize these poisonous plants, their poisonous principles, symptoms produced and treatment.

"Impaction of the Rumen" was discussed by Dr. J. S. Andrade. In handling this condition, he begins treatment with solutions of barium chlorid and tartar emetic, followed by repeated doses of caffein in the form of coffee. He reports a case where no action of the rumen was produced under

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two to three days and good recovery resulted.

"The Roaring Operation in Mules" was next discussed by Dr. M. F. Jackson. This brought out considerable discussion; some seemed to be of the opinion that there was a difference between the spasms of the larynx and laryngeal hemiplegia. The alleged difference, however, was not clearly defined.

A general discussion on "Accredited Herds" was led by Dr. C. A. Cary and Dr. W. D. Staples. The general plan of the state and Government accredited herd was brought out and it was regarded as a forward step in the right direction.

Reports of interesting cases was next in order. Dr. I. S. McAdory reported the successful removal of a large melanotic sarcoma, weighing about six or eight pounds, from the shoulder of a mule. He also reported a case of two punctures of the rumen in a cow, the punctures extending into the spleen, producing abscesses apparently extending through the blood vessels to the liver and then to the lungs. No enlargement of the lymph glands was found. Dr. J. M. Luke led a discussion on the treatment of azoturia with chloral hydrate, lobelin sulphate, etc. Dr. J. S. Cook reported a case of femoral hernia of one month's duration, which apparently had two abdominal openings. As fast as he put the intestines into one opening they came out the other, but he finally succeeded in stitching up the openings and the animal (a one-year-old filly) recovered. He also reported a case that was apparently a "choker" or "roarer." The animal died when it was cast and postmortem revealed a forked clothes pin five to six inches long in the left guttural pouch. Dr. W. D. Staples reported the removal of a piece of wire, resembling a hat pin, from the base of the tongue of a horse, the animal having been unable to eat for several days. He gave as his opinion that nearly all disinfectants, weak or strong, were generally very irritating to a uterus that had been everted. In discussing the use of the stomach-tube, the majority seemed to think that a small single tube was better than a double tube, and passing it through the nasal passage was better than passing it through the mouth.

Lieutenant F. R. Harsh, of Camp Sevier, S. C., reviewed the method of handling influenza, pneumonia, etc., at the Remount Station. His experience led him to think that vaccination or use of bacterins and medication did very little good but that most cases recovered with fresh air in open corrals with protection from cold rains and winds. The death rate as reported by him of all animals that were sick was 4.8 per cent. All animals that were able to move around were turned out in the corral. They had free access to water and feed and plenty of fresh air. He thought influenza by itself was a mild disease but when complicated with septicemia or by bacillus equisepticus the complication became very serious. He stated that they had had considerable trouble with scratches and grease but had obtained the best results by treating with white lotion.

Dr. G. A. Roberts discussed the subject of parasites, especially stomach worms, hookworms and esophagostoma Columbianum. These parasites have been responsible for the death of many cattle and sheep in the South. Removing cattle to non-infected pastures seems to be the most effective measure.

The Veterinary Medical Association of the College entertained the State Association at a "War Banquet" on the evening of March 1st. This was one where the banqueters were short on food and long on talk. There was a flow of language and a feast of reason, minus logic. The chief feature of the banquet was the Service List presented by the students, giving the names and rank of the veterinarians in the U. S. Army who are graduates of the Alabama Polytechnic Institute.

While the banquet was a very enjoyable one, some speakers who have usually been present were missed. We might mention one who has always been very welcome, Mr. Brenner, traveler and salesman, with few equals and no superiors.

On the morning of the 2nd of March one of the belated speakers came in. It is necessary to mention this because there is only one of his kind. We refer to Dr. W. L. Stroup, universally known as "Country" Stroup, of Corinth, Mississippi, who has an original, unique and effective method of collecting debts. According to him it is the only sure method on earth. We cannot reproduce his method here because it would spoil its effect to give it in cold type. There is only one man who can tell about it and that is Stroup himself. Just before the clinic he described his method in his unique style and language. The clinic was well attended and had more cases than could be taken care of. Dr. Geo. R. White, the chief operator, spayed a cat and a cow; caponized a chicken; castrated a mule and a cryptorchid horse. Dr. W. D. Staples inspected and diagnosed a case of obscure lameness and a case of chronic indigestion. Dr. W. L. Stroup made a diagnosis of an eye trouble, corneitis due to traumatism. A deep seated abscess of the shoulder was inspected and Dr. R. I. Kearley advised delaying the operation. Two collie bitches were spayed by one of the veterinarians present. A case of fistulous withers with a Merillat tube in it was exhibited and a case of a mule from which two water bags had

been removed was also exhibited. Several minor cases of lameness were exhibited.

Dr. A. H. French of Birmingham was elected president for the ensuing year. The next annual meeting will be held at Birmingham, Alabama, February 20 to 22, 1919, in connection with the annual meeting of the Southeastern States Veterinary Medical Association. C. A. CARY, *Sec.*

ANNUAL MEETING OF THE VETERINARY ASSOCIATION OF MANITOBA

The annual meeting of the Veterinary Association of Manitoba was held February 20, 21, at Winnipeg.

The meeting, presided over by Dr. H. N. Thompson, was well attended. The financial statement showed the association to be in a flourishing condition.

The following officers were elected:

President, Dr. W. J. Hinman, Winnipeg; vice-president, Dr. J. A. Swanson, Manitou; secretary-treasurer and registrar, Dr. C. D. McGilvray, Winnipeg.

Council: Drs. W. J. Hinman, C. D. McGilvray, W. A. Shoults, and J. B. Still, Winnipeg; Dr. H. Bradshaw, Portage-la-Prairie; Dr. A. G. Husband, Belmont; and Dr. J. A. Swanson, Manitou.

Examining Board: Drs. W. J. Hinman, C. D. McGilvray, and W. A. Shoults, Winnipeg.

Auditors: Drs. Chas. Little and S. T. Martin.

Committee on Veterinary Education: Dr. R. A. McIntosh, Morden; Dr. M. B. Rombough, Winnipeg; Dr. H. N. Thompson, Virden, and Dr. J. A. Leadbeater, Brandon.

Committee on Constitution and By-laws: Dr. W. A. Dunbar, Winnipeg; Dr. J. A. Munn, Carman; Dr. W. H. T. Lee, Minto; and Dr. S. A. Coxe, Brandon.

Program Committee: Dr. W. A. Hilliard, Winnipeg; Dr. A. G. Husband, Belmont; Dr. C. A. Mack, Gilbert Plains; and Dr. S. T. Martin, Winnipeg.

The formation of an Advisory Board for the Dominion, on veterinary education, was discussed, and it was decided that this matter should be taken up with the other associations in Canada, to formulate some joint action.

A contribution of fifty dollars was made to the Salmon Memorial Fund, which is being raised by the American Veterinary Medical Association, for the purpose of commemorating the lifework of Dr. S. E. Salmon.

The evening session was specially well attended, and a number of instructive addresses were given.

Dr. Higgins, of Ottawa, gave an address on "Pertinent Features of Immunology, with Special Reference to Blackleg in Cat-

Influenza, Distemper, Strangles, Laryngitis, Pharyngitis, Bronchitis, Pneumonia, Coughs, Oedema Glottidis, Infectious Diarrhea, Gastric or Intestinal Flatulence, Canine Distemper

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tle, Anthrax, Contagious Abortion and Other Animal Diseases."

Dr. S. E. Hadwen, of the Health of Animals Branch, Ottawa, discussed "Swamp Fever of Horses."

Dr. W. A. Shoults, of Winnipeg, read a paper on "Laminitis of Horses."

Dr. H. N. Thompson, of Virden, discussed "Operative Treatment of Poll-Evil in Horses."

Dr. C. A. Mack, of Gilbert Plains, presented a paper on "Hemorrhagic Septicemia."

On Thursday a series of lectures and practical demonstrations were given at the Manitoba Agricultural College.

Dr. C. D. McGilvray, of Winnipeg, discussed tuberculosis of cattle and the various methods of diagnosing the disease, interpreting test results, and the approved methods of suppressing this disease of cattle. Two reacting cattle were slaughtered and a careful postmortem made by Dr. J. G. Macdonald. The result of the examination confirmed the correctness of the tuberculin test.

The operative technique for sterility in cows was also demonstrated by Dr. C. D. McGilvray, and a postmortem examination confirmed the diagnosis as to the ovaries being the seat of the trouble.

Dr. S. Hadwen gave an illustrated address on investigations conducted by him on parasitic anaphylaxis.

Drs. Shoults and McGilvray gave a practical demonstration on the clinical examination of horses, which elicited much discussion.

The consensus of opinion among those present was that it was one of the best meetings the association had ever held.

. D. McGILVRAY,
Sec.-Treas, and Registrar.

SOUTHWESTERN MICHIGAN VETERINARY MEETING

The second annual meeting of the South Western Michigan Veterinary Medical Association was held at Benton Harbor, Mich., Feb. 21.

Dr. Chas. S. McGuire, dean of the Grand Rapids Veterinary College, cited interesting facts and statistics as to the present live stock condition in the state and the effect of war on the live stock population of the country.

Dr. H. L. Grossman, of the B. A. I., read a very interesting paper on the relative value of different foods for hog feeding, touching also on the splendid work being done by the Bureau in the control of hog cholera.

Mr. W. R. Harper, secretary of the State Live Stock Sanitary Commission, gave a practical talk, pointing out the ways in

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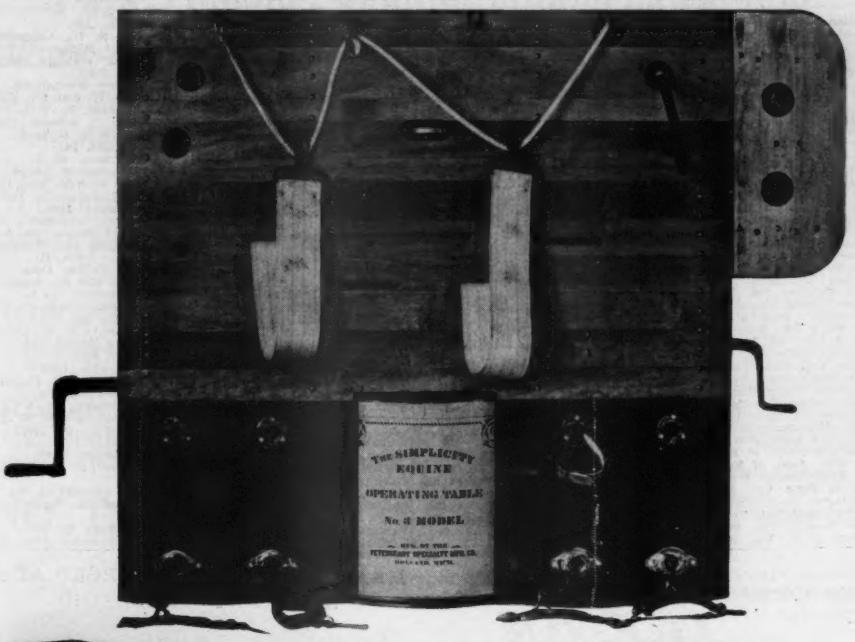

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ASSOCIATION MEETINGS

The information given below is up-to-date and has been furnished by the secretaries of the various associations listed. Secretaries are requested to supply us data regarding their associations after each meeting; otherwise, the association will necessarily be dropped from the list. We ask secretaries to kindly co-operate with us in keeping before the members of their associations the date and place of the next meeting.

Name of Association	Date of Meeting	Place of Meeting	Secretary
Alabama Vet. Med. Assn.	Birmingham, Ala.	Feb. 20-22, 1919	C. A. Cary, Auburn, Ala.
Alumni Assn., Col. of Vet. Med., O. S. U.		Columbus, O.	W. R. Hobbs, O. S. U., Columbus, O.
Alumni Assn., N. Y. State Vet. College		New York	P. K. Nichols, Port Richmond, N. Y.
American Vet. Med. Assn.	Aug. 20-24, 1918	Philadelphia	L. A. Merillat, 1827 Wabash, Chicago.
Arkansas Vet. Med. Assn.		Little Rock, Ark.	R. M. Gow, Little Rock.
British Columbia Vet. Assn.		Penticton, B. C.	Kenneth Chester, New Westminster, B. C.
B. A. I. Vet. Insp. Assn. of Chicago	Monthly, 2nd Friday	42nd and Halsted, Chi.	J. E. Whalen, 1150 W. 64th St., Chicago.
Central N. Y. Vet. Med. Assn.	June and Nov.	Syracuse, N. Y.	W. B. Switzer, Oswego, N. Y.
Chicago Vet. Society	2nd Tues. of month	Chicago, Ill.	J. B. Jaffray, 1534 S. Albany, Chicago.
Conestoga Veterinary Club	2nd Thurs. of month	Lancaster, Pa.	H. W. Barnard, 529 E. King St., Lancaster, Pa.
Eastern Iowa Vet. Med. Assn.		Cedar Rapids, Ia.	S. E. Houk, Muscatine, Ia.
Genesee Valley Vet. Med. Assn.	July	Rochester, N. Y.	J. H. Taylor, Henrietta, N. Y.
Idaho Assn. of Vet. Graduates		Boise, Idaho	C. V. Williams, Blackfoot, Idaho.
Illinois State Vet. Med. Assn.	July 1918	Peoria, Ill.	L. A. Merillat, 1827 Wabash Ave., Chicago
Indiana Vet. Med. Assn.		Indianapolis, Ind.	Geo. H. Roberts, Indianapolis, Ind.
Kansas Vet. Med. Assn.	Jan. 2, 3, 1919	Lawrence, Kan.	J. H. Burt, Manhattan, Kan.
Kentucky Vet. Med. Assn.	July 10, 11, 1918	Shelbyville	D. E. Westmoreland, Owensboro, Ky.
Los Angeles Vet. Med. Assn.	3rd Wed. of month	Los Angeles	J. A. Dell, 16th and Pacific, Los Angeles.
Manitoba Vet. Assn.		Winnipeg, Man.	W. Hilton, 375 James St., Winnipeg.
Mississippi Valley Vet. Med. Assn.		Galesburg, Ill.	W. Lester Hollister, Avon, Ill.
Missouri Valley Vet. Assn.	July, 1918	Neosho, Mo.	R. F. Bourne, Ft. Collins, Colo.
Missouri Vet. Med. Assn.	Last week in July	Omaha, Neb.	C. D. Foise, 1336 E. 15th St., Kansas City.
North Carolina Vet. Med. Assn.		Charlotte, N. C.	J. P. Spoon, Burlington, N. C.
North Dakota Vet. Assn.	July, 1918	Agricultural College	C. H. Hofstrand, Briarsmade, N. D.
Northeastern Indiana Vet. Assn.		Ft. Wayne, Ind.	R. M. Boyd, Avilla, Ind.
Ohio State Vet. Med. Assn.		O. S. U. Columbus, O.	F. A. Lambert, care O. S. U., Columbus.
Ohio Valley Vet. Med. Assn.	July	Oakland City, Ind.	C. E. Henry, Terre Haute, Ind.
Oklahoma State Vet. Med. Assn.		Oklahoma City	R. C. Smith, Enid, Okla.
Oregon Vet. Med. Society	June, 1918	Portland	B. T. Simms, Corvallis, Ore.
Pennsylvania State Vet. Med. Assn.		Harrisburg, Pa.	E. H. Yunker, 2544 N. 18th, Philadelphia
Schuylkill Valley Vet. Med. Assn.	3rd Wed., June and Dec.	Reading, Pa.	C. R. Potteiger, Reading, Pa.
South Dakota Vet. Med. Assn.		Sioux Falls, S. D.	A. W. Allen, Watertown, S. D.
Southeastern States Vet. Med. Assn.	Feb. 20, 21, 22, 1919	Birmingham, Ala.	C. A. Roberts, West Raleigh, N. C.
S. W. Michigan Vet. Med. Assn.			E. C. Goodrich, St. Joseph, Mich.
Veterinary Assn. of Manitoba			C. D. McGilvray.
Veterinary Assn. of Saskkatchewan	Aug. 15, 16, 17, 1918	Regina, Sask.	R. G Chasmar, Hanley, Sask.
Vet. Med. Assn. of New Jersey		Asbury Park, N. J.	J. H. Haffer, 49 Pearl St., Paterson, N. J.
Vet. Med. Society Wash. State College	1st and 2nd Tues. ea. mo.	Pullman, Wash.	Claude Holden.
Virginia State Vet. Med. Assn.		Norfolk, Va.	W. G. Chrisman, Blacksburg, Va.
Washington State Vet. Med. Assn.	June, 1918	Portland, Ore.	Carl Crafer, Bellingham, Wash.
West Central Ind. Vet. Med. Assn.	3rd Wed. of month		A. B. Niven.
West Virginia Vet. Med. Assn.		Parkersburg, W. Va.	E. Layne, Huntington, W. Va.
Western N. Y. Vet. Med. Assn.		Buffalo, N. Y.	F. F. Fehr, 36 Prospect Ave., Buffalo

which veterinarians could be of real help to the Commission in carrying out the work planned.

Dr. Dunphy, state veterinarian, cited a great many interesting facts and advised the members regarding a movement that is now on foot in the state to modify the present veterinary law in order to let the bars down to undesirables.

County Agent Harry Lurkin talked on co-operation between the veterinarians and county agents, and the producing of pigs that would be immune to hog cholera.

A schedule of prices was adopted by the association to meet the present conditions.

Each member present pledged himself to exert his greatest efforts in his particular territory in the conservation of live stock and to co-operate with county agents, members of the B. A. I., and Live Stock Sanitary Commissions, thereby doing his bit to help win the war.

The following officers were elected: President, Dr. L. A. Hosbein, Coloma, Mich.; first vice-president, Dr. H. P. Heinlen, Dowagiac; second vice-president, Dr. John Neville, Decatur; third vice-president, Dr. E. L. Kreiger, Benton Harbor; secretary and treasurer, Dr. E. C. Goodrich, St. Joseph.

E. C. GOODRICH,
Sec.-Treas.

MEAT CONSERVATION URGED AT A WESTERN N. Y. MEETING

Conservation of animal food and increased production was the keynote of the meeting of the Western New York Veterinary Medical Association at Buffalo, February 21.

The meeting was called by Dr. J. L. Wilder of Akron, president, for the purpose of discussing food conservation.

"The war has taught us the art of conservation," said Dr. Hollingsworth, of Utica. "Food will win this war and we, who stay at home, are duty bound to sacrifice in order to provide for others. The allies ask the United States to produce 65 per cent of next year's food suppy. How are we to do it? Raise more meat and milk-producing animals and eat less of the meat that can be shipped easily. "A stimulus must be given to the intelligent raising and feeding of live stock."

Dr. Hollingsworth contended that municipalities could stop a great economic loss by utilizing the collected garbage as food for hogs.

A committee was appointed by the president to formulate a campaign designed to increase interest in the movement to stimulate the raising of live stock.

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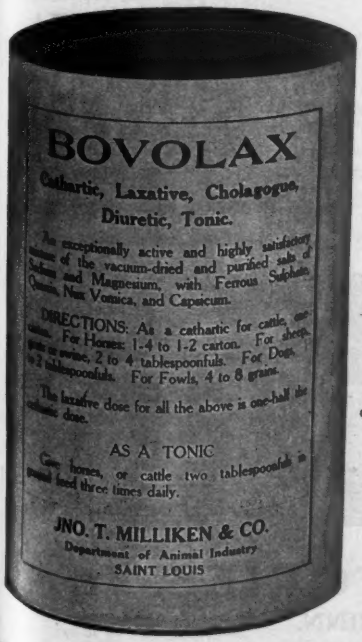
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The laxative dose for all the above is one-half the cathartic dose.
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HEAVY CONDEMNATION CHARGES HALT KILLING

Under verbal instructions from Governor Gardner, no slaughter of cattle in Missouri has been ordered recently by state veterinarian F. D. Luckey. It is understood that it was feared that the expense of paying for the condemned cattle would prove too heavy. The last legislature appropriated $120,000 to pay for cattle condemned during the biennial period of 1915-16. It is hoped that, this year at least, there will not be such a big bill piled up against the state from this source.

SUBSTITUTES FOR ANIMAL FOOD

The French are experimenting with seaweed with a view of obtaining a substitute for hay for feeding horses. A factory to handle almost an unlimited supply is being erected at Pan-An-Lam in the district of Tréguir.

During the Franco-German War a cocoanut cake was largely used as a substitute for oats for horses; this seems to be the only instance in history of an attempt to produce a substitute for oats. While substitutes for food for man are plentiful, even in scarce and lean times following long and violent wars there has been little accomplished in the way of food substitution for animals. Perhaps the present war will develop something new in food camouflage, which can be successfully "put over" on old Dobbin.

TWENTY-FIVE PER CENT INCREASE IN THE NUMBER OF HOGS

A government press bulletin is authority for the statement that there are more than six hundred million hogs in the country today, while one year ago there were only four hundred million.

The danger of loss from disease is of course proportionately greater than it was last year. Every veterinarian should consider himself an ex-officio member of his state council of defense for the prevention of hog cholera in his locality, and count ravages of hog cholera in his district a reflection upon either his ability as a practitioner or his influence as an expert in live stock sanitary matters.

According to a recent report submitted to Dr. R. W. Hoggan, state live stock inspector, Utah, rabies recently claimed as victims, 32 hogs, 15 head of cattle and 2 horses on one farm at Wendover, Utah. War is being made on coyotes, which are said to be responsible for the disease gaining a foothold among the stock.

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At a conference of veterinarians of New York, New Jersey, Connecticut and Massachusetts at the New York State Veterinary College, New York University, in New York City, the methods used in the purchase and handling of animals for war purposes was discussed and a resolution to the following effect was adopted:

Whereas, The present system of purchasing thousands of horses and mules and carrying them into infected and contaminated corrals and shelters in the various camps, subjecting them to the multiple infections—primary and secondary—is wasteful and wholly unscientific from our knowledge of these diseases, their prevention and control.

We urge upon the War Department, through the Surgeon General's office and its veterinary corps, the immediate cessation of this wasteful plan of gathering its army of horses; that we at once adopt the conscription of acclimated horses in the large cities and towns and that we distribute the young, unseasoned and unacclimated horses to individual owners or in small groups, that they may be broken into the service they are destined to perform, without the tremendous death losses now reaching upwards of a million of dollars, unfitting a large percentage of additional animals for any future useful army service and making every army camp corral a distributing center of every known infectious and contagious disease of horses and mules, transferring these diseases to our animals over the seas, making ineffective in large measure our up-to-the-minute fighting forces.

OHIO VALLEY ASSOCIATION MEETING

At the two day's meeting of the Ohio Valley Veterinary Medical Association, held at Terre Haute, Ind., February 19 and 20, papers were presented by Dr. George B. Jones, Sidell, Ill.; Prof. W. E. Allen, Purdue University; Dr. T. A. Sigler, Greencastle, Ind.; Dr. L. A. Ray, Quincy, Ind.; Dr. Hayes, Indianapolis; and Dr. L. E. Northrup, state veterinarian of Indiana.

The appearance of blackleg in a herd of cattle near Salina, Kan., resulted in the vaccination of the entire herd of 150 animals. Two of the cattle had already succumbed to the disease. This is the first appearance of blackleg in that county for some time, but it is said no further inroad of the disease is feared.

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ANNUAL MEETING OF THE CENTRAL CANADA VETERINARY ASSOCIATION

At the opening of the fifteenth annual meeting of the Central Canada Veterinary Association, Ottawa, Ont., February 6, Dr. George Hilton, president of the society, read the following message from Dr. F. Torrance, Veterinary Director General and Honorary President of the Association: "Regret absence prevents my attending meeting for success of which present my best wishes."

The wishes of the Honorary President were realized. "The best attended and altogether most successful meeting we have ever held," a member put it when the last business was finished.

A very enjoyable dinner was given at The Plaza at which nearly fifty members sat down. Over the coffee and cigars, Mr. Gordon Rogers, of the Health of Animals Branch, entertained with several well chosen recitations and his humorous and witty sallies at the expense of the veterinary profession provoked much merriment.

That the members fully appreciated their responsibilities and anticipated a large attendance was evidenced by the very able papers presented for discussion. At the afternoon session Dr. Higginson, of Hawkesbury, gave an excellent address on "Parturition and Some of Its Problems," and brought forth a lively discussion.

Dr. Bellamy, of Alexandria, read a paper on "Differentiating the Intestinal Disorders of the Horse," the subject being handled in a masterly manner and bearing all the earmarks of the author being a careful and studious practitioner. Drs. James of Ottawa, and McMaster, of Cornwall, gave some pointed remarks on "The Examination of Horses for Soundness" and "The Treatment of Serous Sacs of the Shoulder." Professor E. A. A. Orange, principal of the Ontario Veterinary College, Toronto, gave an interesting address at the afternoon session and entered whole-heartedly into the discussion of the various subjects presented.

Dr. Fowler, of Toronto, gave some interesting reminiscences of strange cases met with during his surgical career and exhibited specimens including rudimentary teeth taken from dentigerous cysts of the testicles. Dr. Charles H. Higgins, Ottawa, Canadian representative of the Lederle Laboratories, gave a talk on "Bacterial Vaccines, Sera, etc.," which was much appreciated. Dr. S. Hadwen, pathologist of the Health of Animals Branch, Ottawa, spoke on "Miscellaneous Diseases of Animals, and Poisonous Plants" illustrated by lantern slides. This was such a popular as well as illuminating talk that Dr. Hadwen was unanimously elected an honorary member of the Association. Another notable contribution, illustrated, on "Contagious Abortion of Cattle" was made by Dr. J. C. Reid, of the Biological Laboratory, Ottawa. An interesting display feature at the meeting was an exhibit of pathological specimens of animal diseases prepared by Dr. J. A. Allen, also of the Biological Laboratory.

The following officers were elected: Dr. F. Torrance, Honorary President; Dr. George Hilton, President; Dr. N. M. Bellamy, Vice-President; Dr. A. B. Wickware, Secretary-Treasurer, and the following executive slate: Drs. A. A. Etienne, L. Mulligan, J. B. Hollingsworth, W. C. Young, A. N. Metcalfe, J. Langevin, P. E. Pallister and C. H. Higgins.

Notwithstanding the inclemency of the weather, the mercury registering around 20° below zero, accompanied by a snow storm, the meeting was the best ever held, with a record attendance of nearly fifty, and from all indications the Association and the veterinary profession of Central Canada is coming into its own. The outlook for next year is very bright and with an unprecedented spirit of optimism prevailing we anticipate enrolling many new members and sending your Journal an eye-opener as regards a wide-awake veterinary association.

The stabbing of two cows at a dairy at Beresford, San Mateo county, Cal., has aroused considerable excitement among cattlemen in the community. It is feared that it is a result of the "direct action" methods of the I. W. W., and whether it is the forerunner of a wholesale cattle-killing plot remains to be seen. The animals recovered from the stabbing but their wounds called for the services of a veterinarian.

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EXAMINATIONS FOR LICENSE TO PRACTICE IN ILLINOIS

Examinations will be held April 25, 26 and 27 for license to practice Veterinary Medicine in Illinois. For application blanks and information as to the place of holding these examinations address the Department of Registration and Education, Springfield, Illinois.

The Department of Registration and Education has assigned a number of inspectors to the work of investigating alleged violations of the Illinois veterinary practice law, and is making every effort to stamp out illegal practice and to uphold the standard of the profession.

Heretofore, no organization has taken an active part in the enforcing of the Illinois Veterinary Practice Act except the Illinois Veterinary Medical Association. While the Association has been instrumental in preventing many unregistered men from practicing, and has reduced the amount of illegal practice greatly, it has not been able to entirely suppress it. It is hoped that the Department of Registration and Education will be able to entirely eliminate illegal veterinary practice in the state.

In this connection it may be noted that in not a few cases regularly licensed practitioners have abetted illegal practice through the employment of non-qualified assistants.

The Illinois Veterinary Practice Act plainly provides that none but licensed practitioners and bonafide students in veterinary colleges, can engage in veterinary practice in the state, and that bonafide students must practice only under licensed preceptors, may not perform operations, diagnose cases, nor prescribe or administer medicine, excepting in the presence of the preceptor.

At the recent meeting of the Illinois Veterinary Medicine Association, the members present took a decided stand and thoroughly endorsed the provision of the law and condemned without restraint the practice of employing unregistered assistants in making calls or for any other purpose contrary to the spirit of the law.

It was the testimony of a number of the leading practitioners who have employed assistants for years that under the Illinois law no student assistant however proficient was worth more to a practitioner than the cost of his board and room, and a sort of understanding seems to prevail that none would pay more than this for student assistants.

Dr. M. E. Welch, Hood Water, Ore., 62 years old, is passing around the cigars in honor of the birth of Michael Edward Welch, Jr.

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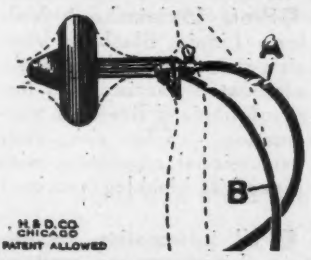

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GERMAN POISON PLOT

According to recent reports 50 horses are dead of poisoning in Covington, Ky., and many more are expected to die out of a government shipment of 726 horses from Camp Grant, Rockford, Ill., consigned to Newport News, Va.

Dr. L. E. Crisler, Covington, pronounced the death of the animals to be due to belladonna and croton oil poisoning.

The deaths of the horses are said to be the result of German plots, and every movement of the consignment after it left Camp Grant until the horses commenced dying will be traced, it is said.

DEATH OF CHAMPION COW

In the death of Duchess Skylark Ormsby, the dairy breed lost one of its most outstanding champions. This pure-bred Holstein produced the world's record of 26,761 pounds of milk, or 1,205 pounds of butter fat, the equivalent of 1,506 pounds of 80 per cent butter. This cow died on December 29, at Woodlake Farm, in Minnesota. Her reputation as a producer has spread to all parts of the United States.

While Duchess Skylark Ormsby is dead, her productive influence for the breed will not be lost. Her dam is still living, as well as four sisters, all of which have made good records. Besides, there is one daughter of the cow herself, and two granddaughters, from this daughter. The owner of the cow has a sire, a son of this wonderful cow, and there are more than twenty daughters by this son. Professor Kildee, of the University of Minnesota, says:

"While the queen of the dairy world is dead, let us hope that her wonderful combination of production and type may live in her descendants. Her work as a producer and reproducer has been of great value to the breed and to the industry. She has stimulated our ideals and given us a new goal."—*Wallace's Farmer.*

A BRAYLESS STORY THAT WON'T DIE

On his tour of the war zone in France, Secretary of War Baker visited a remount depot, which for the most part consisted of immense mule stables. It is here that the Americans have taken up French veterinary practice, extracting the "bray" from a mule by a slight surgical operation on the nose, so that the silvery bray, which can be heard a mile or two upon silent nights at the front, will become a harmless wheeze—not enough to awaken the enemy and draw his shell fire.—*Chicago Tribune.*

Don't Read This Page

Unless You Are An Up-to-the-minute Veterinarian!

Careful preparation is necessary in these days of specialization before undertaking any important work. The training on the subject of Sheep Diseases which most veterinarians received in college is wholly inadequate for the urgent demands of the present.

Suppose you receive a call like this (An actual case):

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SOUTH IN NEED OF VETERINARIANS

In a recent communication, Dr. G. A. Roberts, of Raleigh, S. C., states that as secretary of the Southeastern Veterinary Medical Association, he has been in a position to note the great loss of veterinarians in the Southeastern states, by reason of the many practitioners who have answered their country's call. He states that there were not a great many veterinarians in this territory to begin with and of these, many were within the draft age. As a result, many communities accustomed to the services of a competent veterinarian are left without such service, and are feeling the loss keenly. Dr. Roberts suggests that perhaps some communities which have not suffered so much from the draft might spare some competent veterinarians for the South. Senior students in veterinary colleges, who are not subject to the draft, and who are looking for locations, might find it advantageous to look into the matter, and we would advise them to get into communication with Dr. Roberts at once.

Dr. Legner, of Paw Paw, Ill., has rented a building which he is overhauling and making changes necessary to fit it for a veterinary hospital.

Dr. R. B. Koontz, well known throughout the counties of Somerset and Cambria, Pa., died at his father's home, Stoyestown, Pa., after a long illness from tuberculosis. Dr. Koontz graduated from the Veterinary College of the University of Pennsylvania, in 1911, following which he was associated in practice with Dr. Prothero, at Johnstown, Pa. Later he practiced at Barnesboro, Pa., where he built up a good business.

Drs. Chauncy and Russell Collins, have purchased the veterinary practice of Dr. Parker, of Oskaloosa. Dr. Chauncy Collins, who was located at Fremont, Ia., sold his practice there to Dr. H. A. Bell, of Fairfield.

Professor Rice of the Illinois State University, Dr. C. E. Fidler, of Canton, and Dr. W. L. Hollister, of Avon, Ill., made addresses at a recent meeting of the Fulton County Agricultural association held at Canton, Ill. The keynote of the meeting was "increased meat and grain production" for the coming year.

Owing to an outbreak of blackleg near Oregon, Ill., large numbers of cattle are being vaccinated to prevent further spread of the disease.

1917 VOLUME I

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The erection of a general abattoir for Louisville, Ky., is being agitated. It is understood that the owners of slaughter houses are opposed to the project. But according to Dr. Stanley L. Bond, of the Bureau of Animal Industry, who has spent considerable time in Louisville inspecting conditions in the slaughter houses, government inspection will be forced upon the slaughtering concerns if they fail to get together in favor of the abattoir. The city health department is anxious to have the abattoirs built for obvious reasons.

Dr. S. J. Rayfield, asssitant veterinarian, formerly stationed at Smithville, Ga., has been transferred to Americus. Dr. Rayfield is doing work on the control of hog cholera, under Dr. Bahnsen.

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WOMEN HORSE NURSES

In London Messrs. MacNamara, who employ about forty woman drivers, have put their horse hospital entirely in charge of women. Mrs. Pary, the superintendent, says they have thirty to forty patients a day. She and three assistants do all cleaning, grooming, feeding and administering of medicines prescribed by the veterinary surgeon. The animals, she says, are grateful and companionable, and she has no doubt that women will want to keep on with this work after the war. "We do not baby the horses," she says. "Somehow we reform the worst cases of temper, and the women can do anything they like with even fractious, nervous and suffering horses. The effect on the nerves of the horses, and consequently on their value, is noticeable."

Dr. H. B. Wintringham, Pataluma, Cal., has leased his veterinary hospital there to Dr. E. C. Morris, of Mill Valley, Cal.

Dr. J. R. McDonald, of Ames, Iowa, has taken over the practice of Dr. J. D. Cline, Clarion, Iowa.

Dr. R. D. Johnson, of Woodhull, Ill., has recently located at Sherrard, Ill.

We are informed that Dr. Wm. F. Williams, of Racine, Wis., died some little time ago at his home in Racine.

The West Central Indiana Veterinary Medical Association met at Lebanon, Ind., March 30. This organization has replaced that formerly known as the Montgomery County Veterinary Medical Association. It meets the third Wednesday of each month at the various county seats in the territory covered by the organization.

ADDENDA

In calling attention to the report in tl. March issue of the meeting of the Alumi. Association of the New York State Veterinary College, of New York, with the New York Veterinary Society, Dr. Garnett points out that the statement (as reported) made by Dr. Rogers that there were 54 graduates from the New York college in 1902 was disproved at the meeting; as a matter of fact, there were only five in the class of 1902. There were 128 graduates during the period from 1899-1917, 73 of them remaining in New York state. The quotation from Dr. Adams should have read "There is no place in the world today a well-rounded veterinary college located in the heart of a great city."

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NEW YORK INCREASES VETERINARY APPROPRIATION

At a recent meeting of the farms and market council of New York at Albany it was voted to add about $10,000 to the budget proposed by Governor Whitman for veterinary service. It had been proposed to reduce salaried veterinarian service, substituting per diem remuneration therefor, in the interests of economy. Representatives of agricultural organizations, however, advocated continuance of the salaried plan, and asked for an increased appropriation. It was claimed that the latter method would be more effective in the reduction of diseases, thus reducing the indemnity charges which the state would have to pay for the loss of cattle.

Dr. B. L. Cook, formerly field veterinarian with the Minnesota State Live Stock Sanitary Board, has located in Farmington, Minn., with offices in the Grieble Block.

Dr. L. C. Hull, Colchester, Ill., who has been in the hospital for some time following an operation for varicose veins, has so far recovered as to be able to return to his home.

SUNDAYISMS

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It is not that he is the mouthpiece of the devil but that he thinks he is the viceroy of God.

It is not only our duty, but a great privilege to loan our money to the Government in this hour of staggering need.

We can win. We must win. We shall win. So dig down deep and let us fill Uncle Sam's Bank Vault high with our money and help send a shiver down the crooked spine of the Hohenzollerns who are dancing on the thin, thin crust of hell.—Billy Sunday.

HONORARY APPOINTMENT GOES TO DOCTOR DYKSTRA

Dr. R. R. Dykstra, professor of surgery in the department of veterinary medicine, Kansas State Agricultural College, Manhattan, Kansas, has been appointed veterinarian of the Kansas state board of agriculture for the year 1918. The position is an honorary one awarded to men of distinguished ability in veterinary medicine.

The greater proportion of deaths of animals in the army results from influenza, popularly known as "shipping fever," and its complications. British losses on horses purchased in the United States during the war have been about 10 per cent, counting only deaths occurring in this country. French and Italian losses have been higher.

FIGHT ON INFLUENZA

In an effort to stamp out influenza among horses and mules, now prevalent in all parts of the country, especially in the army camps, Captain E. B. Allen and Lieutenant C. E. Cook, of Fort Worth, Texas, acting for the War Department, have been spending some time in Louisiana and Mississippi inspecting stockyards, unloading stations, sales stables, and other places where work animals are received, kept and handled.

Lieutenant Cook, who is a veterinarian, and Captain Allen, will make recommendations for improving the sanitary conditions of the yards and the Bureau of Animal Industry will be charged with carrying the orders into effect. Dr. R. W. Tuck, head of the bureau's inspection work in New Orleans, will name two veterinarians to handle the situation there.

The report of Captain Allen and Lieutenant Cook, after their visit to Louisiana points, included the statement that the stockyards of the Crescent City Slaughter House Company, at Arabi, were in such condition that they recommended that the yards be closed to horses and mules until properly repaired and disinfected.

The campaign to eradicate influenza is to be vigorously waged in all of the Southern states.

BOARD OF HEALTH SUPPORTS VETERINARIAN'S VIEWS

The board of health of Lawrence, Mass., at a recent meeting voted to enter a protest against a bill soon to be acted upon by the legislature, relative to the re-quarantining of animals after they have been released. The amendment is to the effect that when an animal has been released from quarantine by order of the commissioner it shall not be again quarantined for a period of 30 days.

Dr. John F. Winchester, the city veterinarian, contended that if the amendment were enacted it would prove detrimental to public health by reason of the fact that it would allow any animal affected with tuberculosis or other dangerous disease, released from quarantine, to be at large at least 30 days and the condition created would cause additional opportunity for "graft" on the part of the state officials. Following the consensus of opinion, the board entered a protest against the bill.

The board voted to endorse a proposed bill, which provides that hog serum and other serums, virus and anti-toxins, shall be distributed by the bureau of animal industry.

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ROADHOUSE HEAD OF DAIRY DEPARTMENT

Dr. Chester L. Roadhouse, who has been appointed head of the Dairy Division of the University of California, with headquarters at the university farm at Davis, brings to his new work a broad experience gained in agricultural and dairy service.

Dr. Roadhouse was born on a dairy farm near Watsonville, Cal., and graduated from the Veterinary College of Cornell University in 1906, following which he was a veterinary inspector in the B. A. I. until 1908, when he resigned to become chief dairy inspector in the health department of San Francisco, since which time he has served his native state in various capacities.

In his new position Dr. Roadhouse will make a specialty of the problems relating to the city handling and distribution of milk.

Dr. Grant B. Munger, veterinary inspector in the bureau of animal industry, has been transferred from the hog cholera control force of Dr. C. H. Hayes, Indianapolis, to the force of Dr. James McDonald, Springfield, Ill.

Dr. J. E. Dwyer has been transferred to sheep scabies eradication work at DeRidder, La.

Calf with extrathoracic heart. The white spot on the neck indicates the location of the heart. Dr. G. A. Holkenbrink, of the St. Joseph Veterinary College, is holding the calf.

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W. A. McNeill, Rives, Tenn.
Dr. T. W. Johnston, 646 N. Main St., Dayton, Ohio.
Dr. G. H. Conn, 311 Croghan St., Fremont, O.
Dr. C. C. Mills, Decatur, Ill.
Dr. N. J. Mayer, Mitchell, So. Dak.
Dr. W. L. Edwards, Visalia, Calif.

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Dr. A. M. Taylor has been assigned to duty by the Federal bureau of animal industry, at Pierre, S. Dak., where he will assist in the work of eradicating tuberculosis. Dr. Schofield, of the state force, will work with him, the plan being to build up accredited herds throughout the state.

It is announced that Dr. Henry McNally, government veterinary inspector at Kansas City, has been transferred to St. Joseph, Mo., to supervise the production of hog-cholera serum and virus. He will take the place of Dr. B. McCormack, who has been transferred to Muscatine, Iowa.

Dr. J. E. McPherson has moved from Kirklin, Indiana, to Mt. Vernon, and established a practice at the latter place.

Dr. R. R. Downing, a graduate of the Terre Haute (Indiana) Veterinary College, a practititoner for eleven years, has recently located at Effingham, Ill.

Dr. W. A. Faloon has been transferred to Atlantic, Ia., where he will be in charge of the federal inspection at the plant of the Central Iowa Packing & Provision Co.

Miss Pauline Rives and Dr. A. E. Bott were married in East St. Louis, Saturday, February 23. The bride is the daughter of Dr. Robert Rives, well known veterinarian of East St. Louis. Dr. Bott is the manager of the Corn Belt Serum Co. While on their honeymoon Dr. and Mrs. Bott made an extended trip through the South and East. They will reside in East St. Louis.

Dr. A. J. Webb, veterinarian, has been appointed city meat inspector of Ogden, Utah.

Dr. G. W. Temple, deputy state veterinarian of El Dorado, Ark., died of paralysis at Hot Springs, Ark., March 3. The body was sent to Springfield, Mo., for burial.

Dr. P. L. Talbot, of Grundy, Ia., has returned to his home after a long and critical illness, spent in hospitals in Albia and Oskaloosa, following an operation for appendicitis.

Dr. Edward Record has been appointed ad interim, state veterinarian of Nevada, to fill the vacancy caused by the death of Dr. Winfred Mack, Dr. Record was Dr. Mack's first assistant in the state hygienic laboratory.

Dr. E. A. Hogan, formerly of Astoria, Ill., has moved to Toluca, Ill., where he has opened an office.

SEIZES HOG MEDICINE

District Attorney Walker has begun action under the admiralty act against the S. H. Hog Co., of Dallas, Texas, and St. Louis, Mo., venders of hog remedies, to prevent the manufacture and sale of certain articles which are claimed to be misbranded.

Marshal O'Connor, under orders from Walker, seized 443 packages of the hog remedy consigned to Hazeltine & Perkins Drug Co. for sale. The United States Agricultural Department tests showed the hog remedy was not up to standard.

UTAH PRACTICALLY FREE FROM SCABIES

Dipping of 7,500 head of sheep from one ranch, at Kelton, Utah, has in the opinion of the state live stock board made the state practically clear of scabies. Official reports to that effect, however, will not be made until the completion of the work of inspectors now at work in several counties. The trouble at Kelton, reported by the owners, was the first scabies found in the state for more than a year. Its source has not been located as yet. With the present prices of wool and mutton, it is estimated that the cost of the dipping vats will be saved in one season's output.

ANNUAL REPORT OF SHEEP COMMISSION

The annual report of the Nevada State Sheep Commission shows that during the recent outbreak of scabbies, the commission caused the dipping twice of 112,645 head found infected, and the dipping once of 229,564 head having been exposed.

Fifty-nine herds throughout the state were found to be infected and were properly treated, besides the disinfecting of hundreds of cars and canals throughout the entire country, in doing which the inspectors covered an area comprising 30,000 square miles.

On December 1, 1917, the commission carried a cash balance of $12,968.31, with which to meet the many demands made upon it in the protection of the sheep interests of the state.

Dr. F. E. Broad, a veterinarian of Crown Point, Ind., son of Dr. C. E. Broad, of Crown Point, has located at Hobart, Ind., with headquarters at the Nickel Plate Garage.

Dr. Heinger, of Metamora, Ill., has taken over the practice of Dr. H. A. Gebhardt, Toluca, Ill., who has gone to Sterling, Ill., to take charge of his father's farm, the change having been made necessary by a younger brother having been called to service.

COURT-MARTIALED FOR EMPLOYING WIFE TO JUDGE HORSES

The court-martial which tried Lieut. Col. James M. Burroughs, Quartermaster Corps, U. S. A., for employing his wife as a clerk in the horse and mule purchasing department at Kansas City, recommended that Colonel Burroughs be reprimanded by the commanding officer of the Central Department. It was proved at the trial that Mrs. Burroughs is a fine judge of horses, and that she was of valuable assistance to the government in the selection of animals. Colonel Burroughs was court-martialed for not requiring her "to perform full service." General Carter, to whom was delegated the duty of administering the reprimand, ruled that the finding of the court was sufficient reprimand in the case and dismissed the incident. It was probably the mildest reprimand ever administered in the history of the army.

PUT $14,000,000,000 SAVINGS IN BONDS

It has been estimated that the whole savings of the people of the United States, ordinarily between $5,000,000,000 and $6,000,000,000 have increased in the last year to about $14,000,000,000. This shows that the habit of thrift is growing. An increase of more than $8,000,000,000 in private savings also shows the country is enormously rich. The Government at Washington is spending about $1,000,000,000 a month to defeat the kaiser. The $14,000,000,000 of savings will cover the expense of the war, if it is invested in Liberty bonds. Where other nations, especially Germany, have been forced to the issue of paper money to meet the emergency, America can meet its obligations out of its national savings. Buy Liberty bonds and force Germany to issue paper money until its financial system collapses as did that of the Confederate States during the war of 1861 and 1865.

Dr. A. B. Curtiss, Hillsdale, Mich., has been appointed by Governor Sleeper as a member of the Michigan State Veterinary board. Dr. Curtiss was recently elected president of the Michigan State Veterinary Medical Association.

Dr. Thomas S. Kelly, for two years cattle inspector of the Duluth health department, and assistant city veterinarian, died suddenly February 20, at St. Mary's hospital, following a short illness from pneumonia.

Cards are out announcing the marriage of Dr. Elmer Moranville and Miss Grace Scherzinger, March 11, at Kansas City, Mo. They will reside at Guide Rock, Neb.

KENTUCKY VETERINARIANS HOLD ANNUAL MEETING

The Kentucky Veterinary Medical Association at its annual meeting at Frankfort, in February, elected the following officers: Dr. M. A. Purdy, Shelbyville, president; Dr. W. A. Simmons, Louisville; Dr. C. W. Fisher, Danville, and State Veterinarian Dr. S. F. Musselman, Cynthiana, vice-presidents; and Dr. D. E. Westmoreland, of Owensboro, secretary.

The association endorsed amendments to the veterinary bill requiring graduates coming from other states to take the examination, thus preventing men who failed to pass in other states from coming to Kentucky and practicing without licenses; and requiring licensed veterinarians to pay a renewal fee of $2, annually. The veterinarians are willing to tax themselves this amount, because the state board does not receive sufficient revenue to pay expenses.

SAN JOAQUIN VALLEY MEETING

The monthly meeting of the San Joaquin Valley Veterinary Medical Association, held in the Fresno Veterinary Hospital, Fresno, Cal., February 13, was largely attended. A clinical operation was performed by Dr. John F. McKenna, and a paper on "Abortion in Animals," was read by Dr. H. L. Nelson. The Valley Association met jointly with the State Association at Modesto the first week in March.

DEAD HOGS BASIS OF PROSECUTION

Several loads of hog carcasses shipped to the Davenport (Ia.) Slaughtering and Rendering plant have been made the basis of a possible criminal case in the Scott county district court. If it is proved that the hogs died of cholera, which is the opinion of Dr. G. H. Thompson, assistant state veterinarian, the owners and the men who transported the carcasses are liable to prosecution. The state law prohibiting the handling and sale of carcasses of hogs that died from cholera is very explicit, and swine breeders are desirous of seeing it carried out in this case.

Examinations, open to residents of the state of Illinois, will be held April 20th, at Springfield, for the position of assistant state veterinarian. The salary will be $8.00 per day while working; minimum age, 21. Further details and application blanks may be secured by addressing the Illinois State Civil Service Commission, Springfield, Ill. Only graduate veterinarians are eligible. A knowledge of sanitary control of live stock and differential diagnosis are essential.

CITY VETERINARYSHIP NO SINECURE

While the fees collected by Dr. John F. McKenna, city veterinarian, Fresno, Cal., amounted to $417.75, according to a recent newspaper report, the activities connected with the office for that period would indicate that the month was a busy one. It included: Clinical examination of 1,542 dairy cows, 11 failing to pass for conditions other than tuberculosis, and 40 tested for tuberculosis with five reactions; 555 cattle inspected at time of slaughter and 13 carcasses condemned besides portions of others; 242 sheep inspected and 50 plucks condemned; 330 hogs inspected and five carcasses condemned; 686 calves inspected.

Dr. G. B. Fincham, a graduate of Ames, has purchased the veterinary practice of Dr. O. Q. Mosey, at Mt. Vernon, Iowa. Dr. Mosey, who has built up an enviable practice at Mt. Vernon, and a cordial following of friends and associates, has enlisted and received his commission as a lieutenant in the Veterinary Corps of the United States Army.

Dr. I. L. Stemen, of Riverside, Iowa, has recently located at Diagonal, Iowa.

After nine months' illness, Dr. Louis A. Buisson, New Orleans, died February 17, at the age of 53.

Dr. A. R. Stephenson, a graduate of Ames, is now located at Anamosa, Ia., where he has opened offices for the practice of veterinary medicine.

Dr. H. J. Satorius, veterinarian of Middleton, Ill., is recovering from paralysis of the fifth nerve, with which he was suddenly stricken recently.

The Oklahoma State Board of Veterinary Examiners will meet at the State House, Oklahoma City, May 1, 2 and 3. Notice is given that all applicants must appear the first day of the meeting. Dr. F. F. Mead, of Cherokee, Okla., is acting secretary of the board.

The losses to the state of Iowa, because of having no proper method of handling dead animals, are placed at $10,000,000 by the state veterinarian. That's paying a good deal for "a dead horse." It is a problem that should prove easy of solution, for there is money in handling dead animals in these days of conservation.

VETERINARIAN GIVEN LUCRATIVE POSITION AT BANGKOK

Dr. Frank Edwards, an American veterinarian formerly connected with the Bureau of Agriculture of the Philippine government, is soon to assume the duties of veterinarian to the sanitary department of the Siamese government at Bangkok, according to a recent issue of the *Manila Times*. It is said that the Siamese government has been considering for some time the possibility of securing the services of a competent American veterinarian for this important post and through the Philippine Bureau of Agriculture Dr. Edwards was recommended for the position, which carries with it the salary of $5,000 a year and quarters.

Dr. C. N. Sears, Bakersfield, Cal., has been appointed county veterinarian by the board of supervisors, to succeed Dr. F. M. Sawyer, the present incumbent.

Dr. C. J. Scott, Knoxville, Iowa, has recently been reappointed assistant state veterinarian for a term of three years.

Clifton D. Lowe, D. V. M., Ohio State University, 1910, has just been appointed to the position of Southern Field Representative of the American Aberdeen-Angus Breeders' Association, with headquarters at Knoxville, Tenn. The territory assigned includes the Southwest, as well as the Southeast, extending from Maryland to Arizona. Dr. Lowe has been specializing along animal husbandry lines for several years.

Complaints are being made to the state veterinarian, Grass Valley, Cal., that owing to the slowness of the state department in making tuberculin tests after request has been filed, farmers owning untested herds have been obliged to label their butter "For Cooking Purposes Only."

Dr. G. R. Clark, veterinary practitioner, is now located at Golden, Ill.

Announcement is made of the marriage of Dr. H. C. Roquet, of Hysham, Montana, to Miss Eva Mjeldy. Dr. Roquet is expecting a call to the colors in the near future.

Dr. N. D. McQueen, who has been located at Latham, Ill., for the past three years, will locate in Mt. Pulaski, occupying the office of Dr. G. M. Merriman, who has been called to military service.

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FOR SALE—Established practice in Colorado town, population over 6,000. Surrounding country good. No competition. Bargain for the right man if taken at once. Address No. 356, care VETERINARY MEDICINE.

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FOR SALE—Practice and complete outfit of veterinary instruments; also a newly purchased supply of drugs. Death of practitioner reason for sale. Address Mrs. G. W. Temple, 332 Oak St., El Dorado, Ark.

FOR SALE—Slightly used McCarroll osteotrite and one Conkey back buckle hopple. Cost $25. Half price if taken before May 1st. Dr. H. M. Snyder, Farmersville, Ind.

FOR SALE—Am entering the army. Will sell good practice in Washington town, center of prosperous farming country. Nearest veterinarian ten miles. Good Ford roadster and practice, $500.00 cash or $600.00 with half cash down and

FOR SALE—Simplicity Equine Operating Table. 1912 model. Good as new. $150.00 f. o. b Tulsa. Dr. C. R. Walter, 221 W. Second St., Tulsa, Okla.

FOR SALE—Small stock of drugs, case, drawers, counters and books. A fine outfit for a veterinarian. Failing health cause of selling. Address, A. J. Stout, Box 584, Ashley, Ind.

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WANTED—An assistant in general mixed practice in West Central New York state. Must be a graduate and licensed. Single man, exempt or not eligible to immediate army service preferred. Address No. 355, care VETERINARY MEDICINE.

WANTED—**Partner in a large Veterinary practice.** One who would take special interest in the country portion of my practice. Address, Whipple Veterinary Hospital, Peoria, Illinois.

WANTED—**A salesman in unoccupied territory to carry as a side-line, on commission, well-known article of interest to every veterinarian. Samples weigh only a few ounces. Address No. 334, care VETERINARY MEDICINE.**

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WANTED—Position as assistant or partner. Graduate, 1914. City and country experience. Age 31, married. South, West or Northwest preferred. Address No. 361, care Veterinary Medicine, note for balance. Address No. 362, care Veterinarian Medicine.

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A PIG FOR EVERY SOLDIER

"A pig for every American soldier in France" is the slogan of a campaign launched by the United States and Iowa state department of agriculture for the increase of the hog supply in connection with the fight to eradicate hog cholera in Iowa. This would mean 500,000 pigs, and the saving of this new pig crop from cholera is the problem confronting the department. Dr. J. S. Koen, inspector in charge of hog cholera control, feels encouraged by the results of the campaign for saving brood sows. The owners of such sows kept them and bred them instead of selling them on a high market, and they have not been losers, for the price is still high, and from all signs will remain so, and there will be a spring crop of at least 500,000 pigs, according to conservative estimates.

FAVORS ARMY VETERINARIANS

The state veterinary board of Minnesota has adopted a ruling that all applicants for veterinary licenses who fail in examinations, and who have enlisted for military service may take re-examination without additional charge. The ruling is important, inasmuch at a $25 fee would otherwise be required.

HOG CENSUS BEING TAKEN

A hog census in all counties in the state of Illinois, is being taken in order to furnish information to the government in determining what the prospects are for the future pork supply and feed to produce it. The census will also show the condition of health of the animals, according to Frank Prather, chairman of the state department of the agriculture advisory committee.

Drs. Hackney and Miller have sold their practice at Newton, Ill., to Dr. Elmer Parker. Dr. Miller contemplates locating at Effingham, according to a recent newspaper item.

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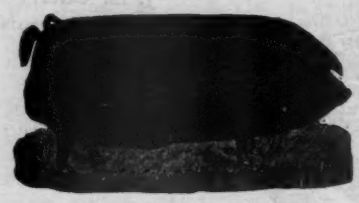

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